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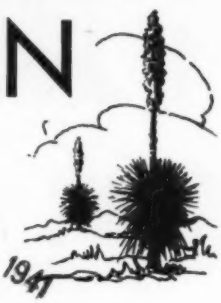

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CONTENTS

UNITY IN MEDICINE 103
W. Paul Holbrook, M. D.

ECTOPIC PREGNANCY 105
Henry J. Goubeaud, M. D.
Hyman Klein, M. D. and
Alexander Kats, M. D.

CHAGAS' DISEASE 112
Sherwin F. Wood, Ph. D.

OTITIS MEDIA IN CHILDHOOD 114
W. E. Vandevere, M. D., and
M. P. Spearman, M. D.

NORMAL BLOOD COUNTS OF MEXICAN CHILDREN OF TUCSON, ARIZONA 116
Edward L. Breazeale, M. S., and
Robert A. Greene, Ph. D.

REGIONAL ILEITIS 117
J. Leighton Green, M. D., and
H. H. Varner, M. D.

EDITORIAL SECTION

WILLIAM PAUL HOLBROOK, M. D. 120

THAT VERDICT 120

UGLY TEETH 121

NORTH AND SOUTH 121

NEW MEXICO MEETING 121

MEDICOFILM SERVICE 121

COMMUNICATIONS 122

NEWS 122

AUXILIARY NEWS 123

MISCELLANY 124

BOOK NOTES 130

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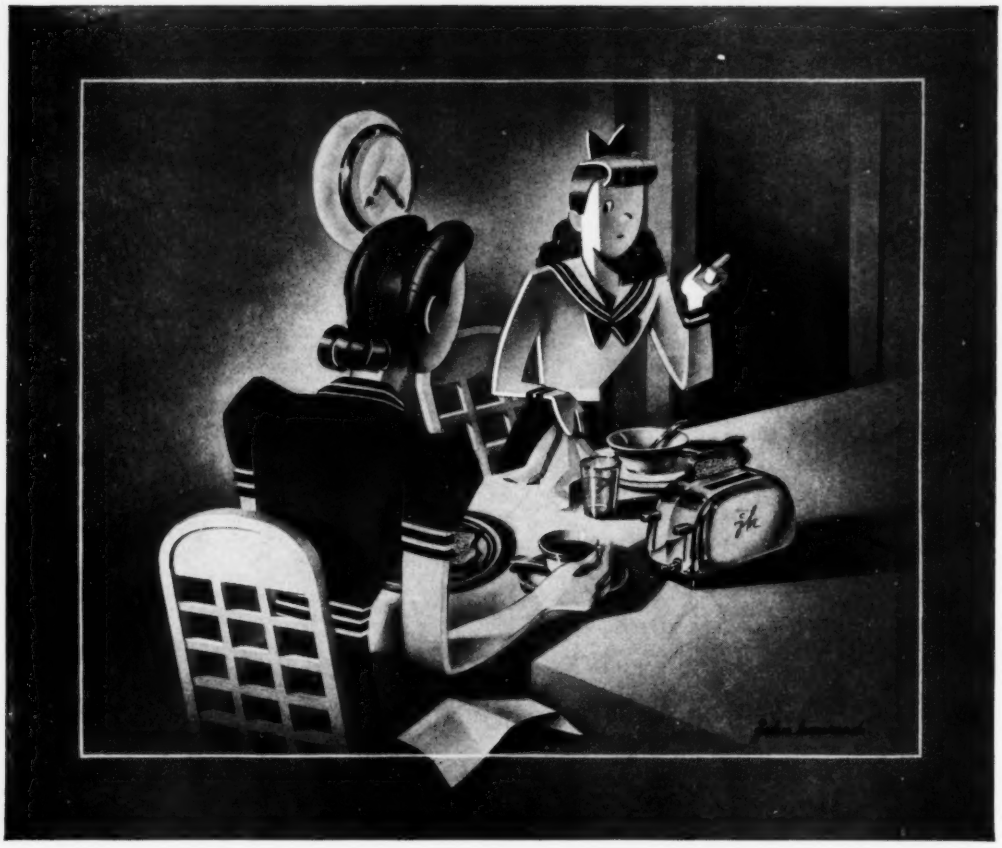

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NEW MEXICO MEDICAL SOCIETY
THE SOUTHWESTERN MEDICAL ASSOCIATION

Vol. XXV | EL PASO, TEXAS, APRIL, 1941 | No. 4

Unity in Medicine

W. PAUL HOLBROOK, M. D.
Tucson, Arizona

IT shall be the purpose of this short address to summarize briefly certain disturbing conditions existing in the practice of medicine, to point out the necessity for a unified program by the medical profession, and to recommend certain objectives to our own State Association for the coming year.

Heading the list of hazards is the threat of State Medicine. To realize the increasing scope of the Government's activities in the practice of medicine you need but to be reminded of the Veterans' Bureau, the Crippled Children's program, the Maternal and Child Health work, the Venereal Clinics, the Aid for the Blind, Social Security, the Farm Security Administration program, the Agricultural Workers Health and Medical Association, the N. Y. A. health program, etc., to name but a few. This should not be interpreted as a criticism of all of these programs nor are they all to be condemned. Far from it. Many of them are fulfilling a crying need and doing the job well. These agencies, however, do represent to some extent the direction in which the Government is moving in the practice of medicine. This criticism is not directed at the need of these people for care but at the methods utilized.

There are those in America who seek to establish political control of medical practice. It is possible that they even believe in the sincerity and altruism of their motives. These same individuals would exchange our system of free medicine, with its record of achievement, for a system which past experience has already branded a failure. Such legislative proposals as the Wagner National Health bill are but the beginning. The Goldstein bill recently introduced in the New York Assembly provides for free doctors, free nurses, free hospitals, free medicines, free ambulances, etc., to all citizens of New York State. It even provides that if the physicians of New York State do not care to work for the Government under the restrictions laid down, new physicians will be trained by the State who will be willing to do as they are told. These bills have not as yet passed Congress or the new York Legislature, but new bills, some of them even more drastic, are in the making and undoubtedly will be introduced at this coming session of Congress. The necessity of national defense no doubt will be offered as the reason for introducing such bills. This has no validity because the American Medical Association and each State Medical Association have long ago offered their entire cooperation to the National Government.

The Government has recently created an additional crisis. You are aware of the outcome of the trial in Washington, D. C. in which the American Medical Association, the District of Columbia Medical Society and many leading physicians of the country were charged by the Government with a criminal offense. This offense actually consisted for the most part in attempting to maintain the ethical standards of the medical profession and of the hospitals in Washington, D. C. The jury brought in a verdict of guilty against the American Medical Association and the District of Columbia Medical Society. Each one of you is a member or fellow of this same American Medical Association so condemned and as such have been adjudged guilty of this so-called criminal conspiracy.

The medical profession of this country is charged with the health of the nation. Under our system of free enterprise and free choice of physician this nation has enjoyed the highest level of health the world has ever known. The average life span for one living in America has almost doubled in the past one hundred fifty years. Since 1900 the total death rate per one hundred thousand has been reduced nearly fifty per cent. Deaths from diphtheria have decrased from 43.5 in 1900 to only two in 1938; typhoid fever was reduced from 36 to 1.9; pneumonia from 203 to 80; tuberculosis from 202 to 49 per one hundred thousand. It should be stated in all fairness at this point that every improvement in the standards of medical schools, hospitals, and in the science of medical practice, which has made possible this amazing record, has come from within the medical profession and not from politicians or by State edict. These data, compared with similar statistics from countries including England and Germany where partial or complete state medicine is practiced, show an astounding difference in our favor. Each year brings notable advances in the prevention and treatment of disease. Most of you can remember the treatment

Presidential Address, delivered at the Annual Meeting of the Arizona State Medical Association, April 17-18-19, 1941.

of diabetes without insulin; pernicious anemia without liver concentrates; hemolytic streptococcus infections without sulfanilamide; pneumonias without oxygen, anti-serum or sulfapyridine; and the deficiency diseases without specific vitamins. This represents but a few of the advances made in our own lifetime. The list of unsolved medical problems is still long, but they are being solved at an accelerated pace. It should be clear to physician and layman alike that every step the people of this country take toward the political control of the practice of medicine reduces the efficiency of that practice and is in a literal sense suicidal. It is the deep obligation of every physician to guard zealously his right to practice medicine independent of political control, and of each layman to insist upon his right in a free choice of his physician.

There are without doubt many thousands of indigent unable to pay for medical and hospital care. There are thousands of others partially indigent and those of low income who are also unable to pay for their necessary care under our present system. It is true that every physician does a large percentage of charity work. But even with this effort the indigent medical load has become too heavy for the physician to carry alone. In addition, many of the low income group do not wish charity and so receive inadequate or delayed medical care. It is the necessity of medical care for these groups that offers the politician his opening wedge to the control of medical practice. It is doubtful that this unhappy situation is limited to the Federal Government alone for it may be that political expediency plays some role in the care of the indigent even in our own state and counties.

The medical profession in the past has been inclined to assume an aloof attitude and have in the main contented themselves with pointing out the evils, and they are many, that have developed when the Government undertakes to provide medical care for these people. Large organizations have grown up in various governmental departments, top-heavy with resultant duplication of expense and a further division of the taxpayer's dollar before a fraction of it reaches the needy indigent. This same situation often exists in our state and county health programs. The waste and inefficiency are enormous with the several federal agencies, state agencies, and the city and county all providing medical care for the indigent in one town.

The threat of politically controlled medicine can be forever destroyed with unified constructive action by the physicians of this country. If every member of a County Medical Society in this State would refuse to hire himself to the Government except as a part of and with the approval of his Medical Society it would obviously become impossible for State Medicine to develop. However, he must then be willing and anxious to meet the Government as a partner in providing care for the indigent and low income groups. The governmental agency fulfills its share of the partnership by providing the necessary funds, the physician his share by caring for these individuals at a fraction of the usual fee. To do this efficiently all funds from Federal, State, County and City agencies should be pooled and devoted directly to the needy sick.

Experiments have been in progress for a number of years in providing hospital care on a prepay budget basis. These have in the main been very successful. Such a plan is in operation in this state. More recently attempts have been made by physicians in several localities to include medical service under such a plan. A number of these have also been entirely satisfactory.

The California Medical Association has recently put into operation a combined plan providing hospitalization and complete medical care for a small monthly sum. What is equally important is that they have set up the machinery for becoming partners with the Government in the care of the indigent or partially indigent sick. Some governmental agencies are already paying their funds into this association instead of attempting to administer the medical problem themselves. This plan maintains all of the ethics of medicine and stops the Government short of any political control. It saves the Government money and the medical indigent receive better care.

The fate of our free system of the practice of medicine then depends upon complete unity in our County Societies, upon their adherence to their representative, the State Association, and in turn its full support of the parent organization, the American Medical Association. It also depends upon our willingness to cooperate with the Government and in our ability and energy in devising plans for the care of the indigent and low income groups. Lastly, if we are to preserve this priceless heritage for our country and for our children we must work publicly, privately, and politically if need be, to maintain the practice of medicine free from political control. Let us then dedicate this year of our Golden Jubilee to achieving an unshakable unity in our own State and County organizations and to working faithfully for the extension of adequate medical care to all in need.

4 East Congress.

Annual Session
NEW MEXICO MEDICAL SOCIETY
Raton, New Mexico
May 26-28

Ectopic Pregnancy

HENRY J. GOUBEAUD, M.D.
HYMAN KLEIN, M.D.
and
ALEXANDER KATZ, M.D.
Brooklyn, New York

AN ECTOPIC pregnancy is one in which the fertilized ovum is implanted and develops outside the uterine cavity. It may occur in any portion of the fallopian tube, the ovary and even in the peritoneal cavity. The occurrence of this latter type in a primary sense, however, is not universally accepted.

Ectopic pregnancy may be classified according to the original site of implantation; that is to say, tubal, ovarian, peritoneal and abdominal. The tubal variety can be further divided into isthmic, ampullar, fimbrial and interstitial, depending upon the particular portion of the tube involved.

The ovarian type is a gynecological curiosity. Meyer and Wynne, up to 1919, were able to collect only 42 cases in the literature. Since then there have been a few authentic cases reported each year, but Wollner, after a review of 87 cases reported id the literature, claims that not more than 48 of them could definitely be classified as true ovarian pregnancies.

In the abdominal variety the original site of implantation frequently is unknown. This type can be subdivided into primary, secondary and intraligamentous.

The primary variety is identical to the peritoneal, and while its occurrence has been reported on the posterior fold of the broad ligament and on the omentum by Hirst, Knipe, *et al.*, it is so rare that only casual mention of it is made in gynecological textbooks.

The secondary type occurs in the tube, but by rupture and growth it invades the abdominal cavity.

The intraligamentous variety develops in the tube and, following rupture, is extruded within the folds of the broad ligament. Intraligamentous pregnancy, if not discovered early, may eventuate into an abdominal pregnancy.

INCIDENCE

The incidence of ectopic gestation according to the early writers, was as low as 1:20,000. Modern authorities, however, due to refinements of diagnosis, report a higher incidence. For example, Wynne, of the Johns Hopkins Hospital, reports the condition as constituting 1.3% of 22,688 gynecological admissions, while at the Jefferson Hospital Anspach states that such patients made up 2.24% of 3,774 gynecological admissions. Noble observed ectopic pregnancy in from 3 to 4% of his laparotomies.

Most authorities agree that the ampullar type is the most frequent the isthmic is next in frequency, the interstitial much less frequent, and the other types more or less curiosities. Hartmann and Bergeret, in an analysis of 146 cases found 119 ampullar, 24 isthmic and only three interstitial. Rosenthal, in a study of 1,324 cases collected from the literature, found only 3% of the interstitial variety.

ETIOLOGY

With ovulation, the extruded ovum is normally floated to the fimbriated end of the tube and is slowly swept along by the tubal cilia towards the uterus. It is believed that fertilization takes place in the outer third of the tube; consequently, for a short period, all pregnancies are tubal. If the fertilized ovum is delayed or arrested in its passage along the tube, implantation occurs and ectopic pregnancy results.

According to Titus, this delay is occasioned by: "(1) Changes in the mucosa resulting from inflammatory disease; (2) developmental anomalies, such as diverticula and blind accessory ostia; (3) a decidual reaction of the tubal epithelium, inviting premature nidation of the ovum; (4) advanced development of the fertilized ovum and over-readiness for nidation due to external migration or wandering from one ovary to the opposite side; (5) obstruction to the passage of the ovum by convolutions, adhesions or tumore of the tube."

Ectopic pregnancy is seen more frequently in city than in country practice. It is often found in women with antecedent pelvic disease, particularly of the gonorrheal type, but puerperal infections and inflammatory conditions, such as appendicitis, may play a role. It frequently follows a long period of relative sterility. Schumann states that 30% of women ectopically pregnant give a history of one-child sterility. Furthermore, commenting upon the fact that 10% of patients with tubal pregnancy have had previous abdominal operations, he says: "Considering the comparatively few women who had had laparotomies this is of prime importance." Litzenberg corroborates Schumann and cites 15% of his own ectopics as having undergone previous abdominal operations.

Age seems to exert no influence upon ectopic. Farrar's statistics, in a series of 262 cases, showed that the ages ranged from 17 to 42 years, and that 63% of the series were between the ages of 24 and 33. Wynne found, in 303 cases, that 61% occurred during the period of 24 to 33 years, while Schumann found that 70% of his patients fell into this age-group.

Ectopic pregnancy shows a predisposition to recur either in the same tube or/and more often in the tube on the opposite side. Hasselblatt collected 21 cases in the literature in which there was a recurrence in the same tube, many of them in the tubal stump following salpingectomy. Schu-

man and R. R. Smith reported a recurrence in 10 to 15% of cases. Smith kept under observation for 5 years 192 patients upon whom he had operated for ectopic and in only 144 was another pregnancy conceivably possible. In this group there were 47 uterine pregnancies and 21 repeated ectopics, an incidence percentage for the latter group of 14.5. A few instances have been reported of as many as three ectopic pregnancies occurring in the same patient (Bennington and Sauwkins; Peterson and Brettauer), but in none of these was the abdomen opened thrice for the purpose of confirming the diagnosis.

Twin ectopic pregnancy has occasionally been observed. Usually, both embryos are in the same tube. Arey found that single ovum twins are more common in tubal than in uterine pregnancy.

Sanger, Krusen and Diamant have reported triplet ectopic pregnancy. Combined extra-uterine and intra-uterine pregnancies have also been reported. Neugebauer collected 243 cases in 1913; Novak reported 276 in 1926; and in 1928 Stein brought the total up to 279.

Ectopic pregnancy with tumors are usually discovered accidentally during the course of laparotomy for the tumors.

Toxemia is rarely found in conjunction with ectopic, and chorioepithelioma has been reported in less than 25 of the cases recorded in the literature.

Dystocia in later pregnancies occurs only in the presence of tumors; for example, a lithopedion resulting from ectopic gestation.

Among the curiosities reported is an ectopic pregnancy in the abdominal wall. This was due to mistaking the tubes for the round ligaments which were pulled through the abdominal wall in an operation for suspension of the uterus.

It is interesting to note that pregnancy has even developed in a sinus within a part of the fallopian tube following a vaginal hysterectomy.

PATHOLOGY

Due to imperfect decidual reaction in the tube and absence of a submucous layer, there is no adequate defense mechanism to the erosive action of the trophoblast; consequently, the delayed fertilized ovum quickly invades the muscular wall of the tube and erodes the relatively large vessels. This accounts for the constant finding of hemorrhage filling the intervillous spaces and extravasation of blood between the muscle fibers.

According to Werth, the ovum may be arrested between the folds of the redundant tubal mucous membrane or it may attach itself to the top of a fold, the implantation being then denominated, respectively, as intercolumnar and columnar. The former is the more common variety.

Upon closure of the site of implantation, the tissues which separate the ovum from the tubal lumen act as a pseudocapsularis and bulge into the lumen of the tube. When this occurs, growth continues and the tubal musculature, being capable of but slight hypertrophy and stretching, soon becomes markedly dilated and thinned by the ovum, which, as DeLee so aptly states, acts like a rapidly growing destructive neoplasm.

Presently, the unchecked trophoblast perforates the wall of the tube and causes intraperitoneal rupture; or it may rupture through the capsularis into the lumen of the tube and give rise to a tubal abortion with complete or partial extrusion of the products of conception into the abdominal cavity.

Litzenberg believes we should use the terms "external rupture" and "internal rupture," rather than tubal rupture and tubal abortion. Rarely, rupture may occur within the folds of the broad ligament and thus give rise to the so-called intraligamentous variety.

Rupture usually is noted before the tenth week of pregnancy, although rarely does the ovum remain within the tube and continue as an advanced extrauterine pregnancy.

Hemorrhage into the peritoneal cavity follows all types of rupture and abortion. If the bleeding is gradual, the blood frequently is walled off and forms a hematocele. In the diffuse variety, however, bleeding is usually profuse, and, as a result, death may ensue within a short time. If the patient survives, the blood clots, unless they are infected, ultimately become absorbed. In the event of infection, suppuration may occur, followed by rupture and drainage into the vagina, bladder or rectum, and, at times, even through the abdominal wall.

The uterus, being stimulated by ovarian hormones, as in the case of normal pregnancy—though to a lesser degree—responds by muscular hypertrophy and decidual formation, the uterine hypertrophy, where the patient goes to term, being equal to that of a four months' pregnancy. On the death of the ectopic ovum, or its disturbance by rupture, the decidua disintegrates in the spongy layer, bleeds and is expelled, either piecemeal or in the form of a cast. The expulsion of a uterine cast usually is accompanied by bleeding and is of great significance in the diagnosis of extra-uterine gestation. However, it should be remembered that although this cast contains decidus, no villi are present. If pregnancy continues to term, the decidum is expelled by the pseudo labor which occurs at that time.

Death of the ovum is common and is followed by absorption or mole-formation. In the event it survives rupture or abortion, it may rarely go to term, die and be transformed into a lithopedion or adiopecere. Mall states that: "Most of the fertilized ova are destroyed in the early stages by the hemorrhage that is produced for their nourishment." In a series of 80 specimens examined by that author, there were 16% of normal embryos, 25% of pathological embryos and 59% of pathological ova. It is estimated that not more than 1% of all normal embryos survive and go to full-term development within the peritoneal cavity.

SYMPTOMATOLOGY

Unfortunately, ectopic gestation before rupture gives rise to few symptoms other than those encountered in normal pregnancy. Although there may be some abdominal discomfort, some vague distress, and even soreness and tenderness on the affected side, the patient usually attributes it to the fact that she is pregnant and pays no further attention to it, until abortion or rupture occurs. Even early examination is not of much help, the uterus being but slightly enlarged and softened and the tube not palpable.

The menstrual history is signally important. Any amenorrhea or delayed, prolonged or disturbed menstruation, particularly if accompanied by pain, should arouse suspicion of ectopic. Menstrual disturbances were noted by Taylor in 81% of cases, by McKenzie in 75%, and by Litzenberg in 84%. Polak, in a series of 227 patients, noted only seven in whom menstruation was normal.

At the time of abortion or rupture there are three cardinal symptoms: (1) Pain, (2) internal hemorrhage; (3) vaginal bleeding. Pain usually is noted on the affected side. It is of a sharp, cramplike, stabbing character in the beginning rupture or the more gradual and insidious abortion. Dull soreness follows, as a result of the present of free blood in the abdomen, and when this collects in the culdesac, it gives rise to pain on defecation. When there is constant discomfort and soreness, or even complete or lancinating pain, the suspicion of ectopic should be very strong. This alternation may occur every few hours, or even every few days, until the ovum is expelled.

At the time of actual rupture there is excruciating pain on one side. This may appear suddenly and without previous warning, or it may be the culmination of gradually increasing colicky pains. This agonizing attack of pain is followed by nausea and vomiting, marked shock and collapse. The patient is pallid, the pulse is fast and thready, the skin cold and moist the blood pressure is low, and she complains of air-hunger, thirst and syncope. In Anspach's series, 26% of the patients had syncope.

When rupture occurs into the broad ligament with hematoma formation, the pain is most intense, and shock overbalances the anemia because of the tearing asunder of the leaves of the broad ligament. Here there may be a history of pain radiating down the thigh. This symptom has occasionally been found helpful in the experience of the authors in the diagnosis of intraligamentous rupture.

De Lee is certain that shock plays a real part in the symptomatology because he has found severe prostration without sufficient loss of blood to explain it.

At times the pain may be referred to the shoulder or to some other part of the abdomen, *e. g.*, the gall-bladder region. Occasionally, intestinal symptoms predominate. Schotmuller cites the occurrence of jaundice when absorption of blood pigments is active.

Anspach states that in 61% of his series the pain was situated in the right or left lower quadrant of the abdomen; in 33% of the patients there was generalized abdominal pain; in 3.5% pain was present in the right shoulder; in 2.5% epigastric or chest pain was noted; in 16% there was rectal or bladder pain, and in 6% it was indefinite or not mentioned in the history.

Rubin, in commenting upon the pain in the shoulder in cases of ruptured ectopic gestation, observes that when the loss of blood is sufficiently great as to flow along the lumbar gutter to the diaphragm, a condition analogous to subphrenic pneumoperitoneum is created—the phrenic nerve is stimulated and pain is referred to the shoulder by the sensitized cutaneous nerves of the cervical segment. Rubin believes that when present, it casts much light upon doubtful cases and is an almost certain indication of ruptured ectopic pregnancy.

Vaginal bleeding prior to rupture or abortion is moderate and deceptive, but an anomalous menstruation, particularly if of a dribbling character, should arouse the suspicion of ectopic gestation. In the presence of beginning rupture or abortion, however, bleeding is significant. It is caused by separation of the decidua in the uterus which sooner or later is expelled, either in shreds or as a cast. It indicates disturbance in the ovum, *i. e.*, either beginning rupture, abortion or death. It is intermittent, dribbling or spotting in type and brownish-red in color. Like menstrual blood, it does not clot, except when the flow is profuse. It recurs with attacks of pain caused by contractions of the tube and uterus. The bleeding coincident with actual rupture shows little change from the preceding type.

On examination, the lower abdomen is tender and may be rigid on one side. If the abdominal wall is not too thick or too firm, a tender mass may be palpated in the region of the tube. One should not be led astray if the patient complains of pain on the side opposite the mass because the localization of pelvic pain is notoriously uncertain. Cullen has directed attention to a discoloration of the skin about the umbilicus. It may be bluish-black or greenish-yellow. Its presence positively indicates the presence of intra-abdominal hemorrhage, but its absence by no means precludes such a possibility. Anspach states that he has never observed this sign, but calls attention to a peculiar bluish, waxy whiteness of the abdominal wall and other skin surfaces. De Lee says he never has noted shifting dullness on percussion, even though a quart or more of blood was removed at operation.

The vaginal mucosa is bluish, the cervix is softened, and the uterus shows an enlargement approximating that of a premenstrual state. But there is no compressibility of the isthmus. If a pelvic hematocele forms, the uterus is displaced forwards and upwards, and fluctuation in the cul-

desac is detected. Sudden forward motion of the cervix elicits exquisite tenderness. The bulging cornu of the uterus may be detected in the interstitial variety, but this usually is mistaken for a fibroid. Palpation of the fornices is painful and often reveals a tender, boggy mass on one side. The pregnant tube, however, is not sensitive invarably, the exception being found in those cases in which the process has passed the active stage. There is a tendency for the pregnant tube to occupy an anterior position and occasionally it is found attached at one point to the peritoneum overlying the bladder or the broad ligament.

Since in these cases fever and leucocytosis are the result of peritoneal irritation, due to the presence of free blood in the abdominal cavity, and to re-absorption of blood, no change is noted to beginning rupture. With the onset of bleeding, however, the temperature is moderately elevated, but at times may reach as high as 104 degrees or more. The leucocyte count, which ordinarily is normal in the early stages, is increased in proportion to the progressive dimunition in hemoglobin and red blood cells.

Anspach, in 36 patients with ruptured tubal pregnancy or tubal abortion, found the leucocyte count varied from 5,600 to 35,000; in 18 it was 15,000 or over, and in 9 it ranged from 18,000 to 35,000.

Anemia varies directly with the amount of blood loss. The hemoglobin determination, however, is not always an accurate index of the degree of anemia, because a decrease in percentage may not be apparent until from 24 to 72 hours after the onset of hemorrhage.

Apparent exceptions to the behavior of red blood cells, white blood cells and hemoglobin usually may be explained on other grounds, *e. g.*, previously existing anemia, overwhelming hemorrhage without reaction or complicating infection.

The pulse rate usually is increased. In 70% of Anspach's patients it ranged from 70 to 110; in 26% betwen 110 and 140, and in 3.2% it was too rapid to be counted or had disappeared at the wrist.

The blood pressure is low and becomes progressively lower with the lapse of time. Repeated blood pressure readings should be taken, as the first reading may be unconvincing, although later ones leave no doubt as to actual conditions. In 72% of Anspach's patients the systolic pressure varied from 100 to 140; in 20% it was under 110, and in 8 patients it was not recorded.

The respiratory rate exhibits no marked changes except in desperately ill patients.

Roentgen rays are available only after the tenth week of gestation when ossification centers have appeared, and consequently are of little value because the fate of the ectopic pregnancy has been determined by that time.

The sedimentation time of the erythrocytes is of some value in differentiating between ectopic pregnancy and pelvic inflammatory disease. A normally slow rate (60 to 90 minutes for a fall of 18 mm.), tested early, even in the presence of fever, suggests the presence of ectopic gestation and the absence of pelvic inflammatory disease. A slight increase is of no differential diagnostic significance. With the progress of time, however, the absorption of blood and the continuance of hemorrhage, the sedimentation rate becomes more rapid and eventually resembles that seen in infection. It should be borne in mind that an advanced ectopic may exhibit the increased sedimentation rate which always is found in pregnancy after the third month. Conversely, a well-marked increase in the sedimentation time during the first 2 months in suspected cases of ectopic pregnancy usually indicates the presence of an inflammatory lesion.

Hormonal tests are of value in differentiating between tubal pregnancy and adnexal conditions of inflammatory or neoplastic origin. De Lee prefers the Ascheim-Zondek test, but the time required for its performance limits its practical usefulness. The Friedman test is quicker, though less positive. These tests, as well as the Mazer-Hoffman test, will be positive if the ovum is alive. Death of the fetus does not affect the Ascheim-Zondek or Friedman test until 7 to 10 days have elapsed, because both are dependent upon the presence of living chorionic tissue. This is in direct contrast to the female sex hormone test of Mazer and Hoffman, which gives a negative result immediately following the death of the fetus.

Williams taught that the discharge of a distinct decidual cast from the uterus without evidence of a fetus or chorionic villi was pathognomonic of tubal pregnancy, especially if a mass could be detected to one side of the organ. However, Griffiths and Daikin demonstrated that such a structure can now and again be expelled from the uterus without the existence of pregnancy of any kind.

Microscopic examination of ejected portions of decidua helps to confirm the diagnosis of pregnancy, but does not differentiate the abortion of an early uterine from an ectopic pregnancy unless chorionic villi can be demonstrated. If chorionic villi are present, the pregnancy must be uterine. Exceptions to this are the rare form of tubo-uterine pregnancy and the unusual combination of extra- and intra-uterine pregnancy.

Formerly, so much stress was laid upon the presence of decidual tissue that diagnostic curettage was recommended in doubtful cases. While the presence of decidual tissue is strongly presumptive, its absence is not of equal value, because the decidus may have been replaced by normal endometrium before the curettage was performed.

De Lee states that he never has found it necessary to use a sound, to curet the uterus or to create pneumoperitoneum to arrive at a diagnosis, and that, furthermore, such interference is dangerous.

Ruddock mentions peritoneoscopy to clear a complicated situation, but the necessity for this would arise only where there is little danger to life.

Many authorities advocate puncture of the culdesac with a long needle, and aspiration to deter-

mine the presence or absence of blood. Titus feels that there is danger of infection from this and that it is a somewhat hazardous and unnecessary procedure. In addition to this, the information obtained may be misleading. One may draw blood from a vein, get a dry tap, or pass the needle into the amniotic sac or into an ovarian cyst. However, it is helpful when it is otherwise impossible to decide whether a fluctuant pelvic mass is blood from an ectopic or pus from a pelvic abscess.

Some advocate posterior colpotomy to replace puncture. They argue that if the diagnosis is confirmed, the affected tube may be removed then and there. However, most operators prefer the abdominal route for surgery of this kind.

De Lee remarks the frequency of acetonuria in ectopic gestation and the presence of hemoglobinuria with rupture. He states further that hematin may be found with the spectroscope, particularly in those patients in whom jaundice is present.

PROGNOSIS

Although ectopic gestation always is fraught with danger, De Lee feels that in the early cases the outlook has been painted too dark, because many ectopics die and are expelled from the tube as abortions or by rupture, and the blood and ovum being absorbed, the patients recover without a diagnosis ever being made. Nevertheless, few cases progress beyond 2 or 3 months without being recognized. Schauta, in 1891, compared the results in 123 operative cases with 121 cases treated expectantly and found the mortality was 5.7 and 86.9%, respectively.

While operation for ectopic gestation in the early stages yields a mortality no higher than that in any uncomplicated aseptic laparotomy, this does not hold true for cases operated upon some time after hemorrhage has occurred because infection of the blood clots may ensue. Although modern diagnostic skill and improved surgical technic have reduced the mortality to below 5%, in contrast to the days before Lawson Tait, when the mortality was 70% or over, and although one series of 1,421 cases collected from six teaching clinics showed a mortality of only 2.24%, it should be remembered that in 1936, in the United States alone, 486 women died of this condition.

The results following laparotomy in advanced cases of extra-uterine pregnancy have also improved greatly, following the advent of aseptic methods, as has been shown by Harris. He collected 27 such cases in 1887 and 145 additional ones 10 years later, with a mortality of 93 and 31%, respectively. However, this operation is still one of the most hazardous in pelvic surgery, as is exemplified by Beck, who quotes the present mortality rate as 35.8%. If the fetus is dead, the outlook is brighter because the danger incidental to bleeding from the placental site is greatly diminished. Few women recover without operation, and, of course, all fetuses die.

Sittner, after a study of a series of 179 collected cases, came to the conclusion that from the condition of the fetus one might allow pregnancy to continue unless the symptoms presented by the mother were threatening. However, most authorities hold the opposite view, the fetus being not viable or deformed. Von Winckel found deformities in 50% of the fetuses—75% in the head, 50% in the pelvis, and 40% in the arms.

All authorities agree that there is no expectant treatment for ectopic gestation. Worth aptly states that the "explosive body" must be removed from the abdomen as soon as possible. Beck says that laparotomy is indicated before, at the time of, or immediately after rupture or abortion. Williams taught that as soon as an unruptured extra-uterine pregnancy was positively diagnosed, it should be removed by laparotomy because rupture might occur at any time and the patient die of hemorrhage before operative aid could be obtained. He condemned as unjustifiable all methods of treatment which aimed at destroying the fetus and thus terminating pregnancy, without operation. There need be no compunction with regard to removing an unruptured ectopic because the primary intention is to remove a diseased organ, and not to produce an abortion. Litzenberg feels that the manipulations essential to diagnosis prior to rupture invariably are followed by rupture.

Operation before rupture consists of the usual salpingectomy, which also is the ordinary procedure during the process of rupture or abortion. When rupture has once occurred, the operative procedure is not so simple, due to the fact that it is complicated by hemorrhage and shock. This has led to debate among gynecologists as to just when to operate in these cases and to the formation of two schools of thought, one of which advocates a waiting and the other an active policy.

The adherents of the waiting policy claim that the hemorrhage will cease after the blood pressure has been reduced to a certain point and that the patient will react, provided she is not disturbed by examination, stimulation, etc. This method is adequate for those patients who do react, but is dangerous and often fatal for those who do not.

The advocates of the active policy, while admitting that a certain degree of reaction must be obtained before operating in desperately ill cases, maintain that the shock is not true surgical shock, but that it is due to hemorrhage and that this should be vigorously combated. External heat, morphine, the Trendelenburg posture, hypodermoclysis, and, at operation intravenous infusion and blood transfusion, if necessary, should be used.

Although Babcock prefers operating through a posterior vaginal incision, thus confirming the diagnosis, ligating and removing the tube at the same time, most operators choose the abdominal route as the method of choice.

Beck teaches that the operation should be performed as quickly as is consistent with aseptic surgery. In severe cases the tube is exposed, clamped at the uterine and ovarian end and removed in toto. The blood clots are not removed, and the abdomen is closed without drainage. No surgery that is not immediately necessary at this time is considered

justifiable. If the patient's condition is good however, the usual salpingectomy technic is followed and the blood clots are removed from the peritoneal cavity.

Litzenberg recommends that all fluid blood be left in the abdominal cavity unless there are reasons to fear infection, because the blood is rapidly absorbed and this is of benefit to the patient. Some authorities advise leaving the blood clots in the abdomen, but Titus feels this may lead to the formation of adhesions and that it favors infection by providing a perfect culture medium.

Transfusions of from 500 to 750 c.c. of whole or citrated blood are indicated, depending upon the condition of the patient. Cashman and Baker have recently suggested massive transfusions of from 1000 to 1,200 c.c. of blood, using two or three donors at a time.

Auto-transfusion has been suggested by some, particularly the German school, but since this often is followed by marked reactions, its use should be restricted to the gravest emergencies. Anspach reports a death from bloodstream infection following its use.

De Lee believes it is safer not to search for or remove the appendix. In tubal abortions it is best to remove the tube, even though there is little or no apparent damage. The same condition which produces the ectopic still exists within the tube, with danger of subsequent ectopic. The opposite tube should be examined, and, if found diseased, should be removed, only, however, if the patient's condition permits. With the advances which have been made in plastic tubal surgery, it is the better part of wisdom to wait and restore it at a later operation.

In pelvic hematoceles and broad ligament hematomata the abdominal route is the preferable one, although in the presence of infection it is better to incise and drain per vaginam.

Despite the fact that many authorities feel immediate laparotomy is indicated when a diagnosis of abdominal pregnancy has been made, it is conceded that, in the interest of the baby, operation may be postponed, provided the mother will submit to constant observation in a hospital, and to interruption of pregnancy at the period of viability, not later than 2 weeks prior to term.

Schumann quotes Beck to the effect that the added risk of waiting for a well-developed fetus is slight up to the thirty-ninth week, but the danger of a catastrophe is sufficiently great in the last 2 weeks to warrant interference before this period of gestation is reached.

The surgical problem is not so much the removal of the fetus as is the management of adhesions, control of hemorrhage, and management of the placenta. If the fetus has been dead a long time, there is little danger in removing the placenta at the time of operation because thrombosis of the vessels has long since occurred. However, if the fetus is alive, or has died only recently, and as the usual mechanism for control of bleeding from the placental site is absent in this type of case, the vessels supplying the region must be ligated before the placenta is disturbed. If preliminary ligation is impossible due to inaccessibility of the placental site, the placenta should be left in situ for the reason that operative interference only results in dangerous and often uncontrollable hemorrhage.

Titus ligates the cord and cuts it as close as possible to the placenta, leaving the latter organ in place with its attachments undisturbed (following the method advocated by Beck in 1919) and closes the abdomen without drainage, the placenta being left behind to become absorbed. In the presence of bleeding from a partially detached placenta, the sac should be sutured to the margins of the wound and packed with gauze. Marsupialization is also performed in the presence of infection.

The patient should not be anesthetized until the operation is about to begin. Preliminary morphinization is necessary, and simplicity of anesthesia is the best rule. Open drop ether is the safest form of anesthesia. De Lee uses ether or ethylene, and Anspach and Titus use nitrous oxide, oxygen and ether. Local anesthesia, when used, should be combined with a light basal anesthesia administered by rectum. Spinal anesthesia is notoriously hazardous in pregnant women.

287 Sterling Place.

TABLE NO. 1

AGE INCIDENCE IN TUBAL RUPTURE AND TUBAL ABORTION IN A TOTAL OF 195 CASES.

Age	No. of Patients
17	1
18	1
19	2
20	1
21	5
22	7
23	7
24	8
25	15
26	12
27	12
28	14
29	12
30	12
31	10
32	12
33	8
34	5
35	7
36	4
37	8
38	8
39	4
40	5
41	2
42	2
44	2
55	1

(Ages in some instances not given on charts)

Age group 25-32 responsible for 99 ruptures.

TABLE NO. 2

VARIETIES OF ECTOPICS AND LOCATIONS

Tubal Ruptures	Tubal Abortions	Unruptured	Abdominal	Ovarian
65	60	10	2	1

Locations	
Right tube	90
Left tube	77
Both tubes	2
Outer third	89
Middle third	36
Inner third	17
Cornu	1
Intraligamentous	5
Hernial sac	1

(In some instances the charts failed to show either the type of rupture or the location.)

TABLE NO. 3
PREVIOUS PREGNANCIES — PREVIOUS ABORTIONS

Previous Pregnancies	
Pregnancies	Patients
0	24
1	43
2	26
3	21
4	9
5	4
6	6
7	1
8	1
9	3

Note: In the group Para O-Para III, there were 114 pregnancies.

Previous Abortions	
Abortions	Patients
1	30
2	9
4	2
4	2
8	1

Note: Out of a group of 195 patients there was a total of 73 abortions.

TABLE NO. 4
Previous Ectopics

4 months previously	1
1 year "	2
3 years "	1
4 years "	1
8 years "	1
Unknown	2
total	9

TABLE NO. 5
Previous Operations

Appendectomy	14
Cholecystectomy	2
D. & C.	7
Herniotomy	2
Suspension of uterus	4
Salpingo-oophorectomy	3
Ovarian abscess	1
Ovarian cystectomy	2
Cesarean section	2
Total	37
Previously operated upon for ectopic	9
Grand Total	46

TABLE NO. 6
Menstrual History

Normal	12
Amenorrhea	13
Premature	21
Regular but prolonged	47
Amenorrhea plus bleeding	59

TABLE NO. 7
SYMPTOMS AND SIGNS

Symptoms		
Pain:		No. of Patients
Both lower quadrants		52
Right lower quadrant		54
Left lower quadrant		39
Right upper quadrant		10
Left upper quadrant		2
Epigastrium		4
Suprasymphysis		5
Entire abdomen		36
Shoulder		12
Syncope		36
Chills		3
Nausea		22
Vomiting		48
Urinary:		29
Dysuria	15	
Burning	7	
Frequency	7	
Dyschesia		9
Signs		
Mass:		20
Left lower quadrant	7	
Right lower quadrant	7	
Both lower quadrants	5	
Suprasymphysis	1	
Tenderness:		65
Both lower quadrants	21	
Right lower quadrant	19	
Left lower quadrant	13	
Entire abdomen	9	
Suprasymphysis	3	
Rigidity		59
Shifting dullness		16
Rebound tenderness		16
Distention		10
Fluid wave		6
Cullens sign		2
Cervix:		
Soft		29
Tender		68
Patent		8
Uterus:		
Soft		12
Enlarged		50
Tender to motion		8
Pulsation		2

Mass		Tenderness	
Culdesac	22	22	
Left fornix	17	1	
Right fornix	36	1	
Fornices and culdesac	10	1	
Both fornices	4	2	
Culdesac and left fornix	10	—	
Culdesac and right fornix	8	—	
Right and left fornices	12	—	
culdesac	2	2	(tenderness in fornices)

TABLE NO. 8
OPERATIONS

Operation	No. of Patients
One tube	98
One tube, partial	11
One tube and one ovary	49
Both tubes and one ovary	3
Both tubes and both ovaries	1
Hysterectomy	2
Cornuectomy	1
Both tubes	2
One tube and one tube, partial	4
Tube and ovary and partial tube	1
Clamping of one tube	1
Clamping of both tubes	1

Additional Operations	No. of Patients
Appendectomy	17
Suspension of uterus	7
Fixation of uterus	3
Suspension of uterus and perineorrhaphy	1
Myomectomy	1
D. & C. and suspension of uterus	2
D. & C.	1
Ovarian cystectomy	3
Partial ovarian cystectomy	1
D. & C. suspension of uterus, appendectomy	1
D. & C. and appendectomy	1
D. & C. and resection of ovarian cyst	1
Suspension of uterus and resection of ovarian cyst	1
Suspension of uterus, myomectomy, resection of ovarian cyst	1
D. & C., insertion of glass stem pessary, resection of ovarian cyst, ventral fixation of uterus	1

TABLE NO. 9
INCORRECT DIAGNOSIS PRECEDING OPERATION

Total Number of Cases, 47

Diagnosis	No. of Patients
Appendicitis	11
Pelvic inflammatory disease	7
Ovarian cyst (side not stated)	5
Twisted ovarian cyst (side not stated)	4
Ovarian cyst, right	2
Ovarian cyst, left	2
Fibroid uterus	3
Bilateral cystic ovary	1
Fibroid uterus and pelvic inflammatory disease	1
Incomplete abortion	1
Surgical abdomen and pregnancy	1
Pregnancy and fibroid uterus	1
Ruptured ulcer	1
Tubo-ovarian abscess, right	1
Threatened abortion	1
Pelvic abscess	1
Carcinoma of ovary	1
Salpingo-oophoritis	1
Strangulated inguinal hernia	1

(One case diagnosed as ectopic and proved otherwise.)

TABLE NO. 10
MORTALITY

	Number of Patients	
Before operation	3	(all died of shock)
After operation	4	
Shock	2	
Embolism	1	
Pneumonia	1	

TABLE NO. 11
MORBIDITY

	No. of Patients	
Wound infection	17	(one followed appendectomy)
Pneumonia	5	
Pleurisy with effusion	1	
Myocarditis	1	
Pelvic abscess	1	

TABLE NO. 12
BLOOD TRANSFUSIONS

	No. of Patients	
Before operation	12	
During operation	13	(8 of whom were auto-transfused)
After operation	30	

TABLE NO. 13

Cause	No. of Patients	
Hormonal	6	
Ascheim-Zondek	1	
Friedman	5	(1 positive, 4 negative)
Curettage	8	
Colpotomy	6	

Chagas' Disease

(Does It Exist in Men in Arizona?)

SHERWIN F. WOOD, Ph. D.
Los Angeles, California

CHAGAS' DISEASE or American human trypanosomiasis of the acute type is symptomatized, according to Yorke,[12] by high fever, unilateral or bilateral palpebral edema, general body edema, enlarged lymph glands and liver, splenomegaly, enfeeblement of the heart, tachycardia, progressive anemia and various nervous reactions as irritability, convulsions, twitchings, and clonic contractions. This type usually occurs in children under 1 year of age and results in death after 10 days to 1 month.

The chronic type may be variable in its effects upon the host, depending upon the site of localization of the tissue developmental forms of the parasite. Since this trypanosome often invades cardiac tissue, symptoms observed in chronic cases, according to Yorke,[12] include tachycardia, bracycardia, arhythmia, extra-systole, alteration of conductivity, auricular fibrillation, and syncope.

Transmissions of this infection is by contamination of scarified skin or mucous membranes with feces of infected insect vectors.

OBSERVATIONS

Kofoid and Whitaker[1] reported the first locality in Arizona for the recovery of cone-nosed bugs naturally infected with *Trypanosoma cruzi*, the causative agent of Chagas' disease. Of 79 *Triatoma uhleri (-ubida)* sent to them for examination, seven bugs, or 9% were infected. Four of the infected bugs came from one wood-rat nest, and three came from occupied human dwellings in Tucson, Arizona. *Triatoma rubida (uhleri)* has been collected very widely throughout the state, as reported by Werhle[9] and Wood.[11]

From 1936 to date, the writer has collected cone-nosed bugs at various times in Arizona and has recently reported a new locality for the recovery of *Trypanosoma cruzi* (Wood[10, 11]). During this time, 1,028 cone-nosed bugs have been collected or received from various parts of the state. Of these, 75.29% came from houses, 22.47% from wood-rat nests, 1.75% from tents, and the remainder from other locations. Examination of the feces of 388 bugs revealed 11, or 3.25%, naturally infected with *Trypanosoma cruzi*. All of the infected bugs came from one locality, the Alvarado Mine, in the foothills of the Weaver Mountains near Congress Junction.

During 1939 and 1940, 430 cone-nosed bugs (1 *Paratriatoma hirsuta*, 15 *Triatoma protracta woodi*, 22 *T. protracta*, 188 *T. longipes*, 204 *T. rubida*) were taken from the vicinity of the Alvarado Mine. Of these, 235 were examined, and 11, or 4.68%, found infected. Ten of the infected bugs were *T. longipes*, 1 was *T. rubida*. One hundred and twenty-one were collected in the nests of wood rats (*Neotoma* spp.), and 309 were collected in, on or about houses or tents. Of the 188 *Triatoma longipes*, 178 came from miners' houses, 6 from tents, 2 from sleeping bags, 1 from the entrance of a mine tunnel near a colony of pale lump-nosed bats (*Corynorhinus rafinesquii pallescens* Miller), and 1 from under a rock slab on a granite boulder. No *Triatoma longipes* have been found in wood-rat nests. Wehrle[9] has reported the collection of *T. longipes* from the foothills of the Tucson, Santa Catalina and Santa Rita Mountains as well as from Bisbee, Arizona.

On the 10 infected *T. longipes*, 8 came from miners' houses, 1 came from the writer's tent, and 1 was collected as it alighted on a sleeping bag. The one infected *T. rubida* was collected in a wood-rat nest. Sixty-two of the 188 *T. longipes* received or collected were examined, and 16.12% found infected with *Trypanosoma cruzi*. Of the 204 *Triatoma rubida* from the Alvarado Mine, 109 were collected from houses, 83 from wood-rat nests and 12 from tents.

The above observations show that both species of naturally infected bugs are found in houses, that both of the species (*T. rubida, T. longipes*) which are most abundant have been found naturally in-

Los Angeles City College

fected, and that the bug (*T. longipes*) most frequently infected has been collected mostly from houses.

As previously reported by Wood,[10] the Congress strain (Alvarado Mine, from *Triatoma longipes*) produced a heavier infection in southern parasitic mice, *Peromyscus californicus insignis* Rhoads, than did a Texas (Marathon) or a New Mexican (Tyrone) strain. Kofoid and Whitaker[1] report for the Tucson strain that "the one mammalian infection with the Arizona strain of *T. cruzi* gave results (40-50 in a field) resembling more closely the often observed heavy infection of the virulent South American strain."

The blood of 56 mammals from Arizona has been examined by trypanosomes. In 1 adult female cave bat, *Myotis velifer velifer* (J. A. Allen), *Trypanosoma vespertilionis* Battaglia was found. This trypanosome is very similar to any may be identical with *Trypanosoma cruzi*. Trypanosomes of the "*lewisi* type" were found in 4 male *Neotoma albigula albigula* Hartley and 1 female *Peromyscus truei truei* Schufeldt.

The following mammals were negative for blood parasites: 4 pale lump-nosed bats, *Corynorhinus ra;inesquii pallescens* Miller; 1 western canyon bat, *pipistrellus hesperus hesperus* (H. Allen); 35 white-throated wood rats, *Neotoma albigula albigula* Hartley; 2 Arizona bushy-tailed wood rats, *Neotoma cinerea arizonae* Merriam; 2 True white-footed mice, *Peromyscus truei truei* Schufeldt; 2 Stephens white-footed mice, *Peromyscus crinitus stephensi* Mearns; 1 Gambel white-footed mouse, *Peromyscus maniculatus gambeli* Baird; 1 intermediate pocket mouse, *Perognathus intermedius intermedius* Merriam; 1 antelope ground squirrel, *Ammospermophilus harrisi harrisi* Audubon and Bachman, and 1 round-tailed ground squirrel, *Citellus tereticaudus tereticaudus* Baird. Examination (Xenodiagnosis) of feces from uninfected cone-nosed bugs fed on 9 *Neotoma albigula albigula** and the 2 *Peromyscus crinitus stephensi** captured at the Alvarado Mine failed to reveal *Trypanosoma cruzi*. As noted above, fresh blood examination of the latter rodents was negative also.

As many as 16 *Triatoma* (probably *longipes* and *rubida*) have been taken by a local resident from a house at the Alvarado Mine in one night. Between May 15 and June 11, 1939, in one house, 2 to 4 *T. longipes* were taken from the bed every night. As evidence of this, 62 adult *longipes* collected during this period were sent to the writer. From June 18 to July 6, 1939, another miner and his wife collected 2 *T. longipes* from their bed every night except three, as proof of which 32 specimens (31 adults, 1 large nymph) were received. They recalled collecting as many as 6 from their bed in one night. Examination of 30 of these 94 specimens showed 4 infected with *Trypanosoma cruzi*. While sleeping in the open at the Alvarado Mine during the summer collecting in 1939, the writer collected 1 infected adult female *Triatoma longipes* as it alighted on his assistant's sleeping bag. A non-infected, partly engorged, large nymph of *Triatoma longipes* was taken from the writer's bag the next morning. During field work on the week end of June 1, 1940, the writer found a stained area on the inside lining of his sleeping bag, evidently a fecal deposit of a *Triatoma* that had fed during the night. Xenodiagnosis of the writer has failed to reveal infection with *Trypanosoma cruzi*.

Some people have reported that the feeding of the *Triatoma* awakens them, but most people find the insects in their beds after they have fed. Miners reported stepping on specimens wandering about on the floor, or rolling on them in bed, thus crushing the bugs against their bodies. The superintendent recalled seeing these insects during his lifelong work in mining camps. He also recalled at least one case of a man who was forced to leave his job at the mine because of a *swollen face, especially swollen eyes*. The condition of swollen eyes, unilateral and bilateral palpebral edema, has been shown by Mazza[3] to occur in 68% of 487 human cases of Chagas' disease diagnosed in Argentina.

Wehrle[9] reported that a couple proving up on a homestead in the foothills of the Tucson Mountains were obliged to ask permission from the government so that they could leave their homestead while the bugs (*Triatoma longipes*) were most active.

These cone-nosed bugs have been active pests of man in Arizona for many years, as attested by Morrill,[5] the former state entomologist, who pointed out in 1914 that they have not only been very prevalent for a long time, as noted by newspapers in "the kissing bug scare of 1899," but also that they probably transmit pathogenic organisms to man in Arizona as they do in South America.

Besides trypanosomes, *Triatoma* may harbor other disease-producing agents of man, as shown by Violle and Sautet[6] for murine typhus in *T. infestans* and by Mertens[4] for plague in *T. rubrofasciata*. Liem[2] found that *Triatoma in;estans* could harbor paratyphoid bacilli, *Spirochaeta duttoni* and *Leptospira icterohaemorrhagiae*.

Torres[7] has pointed out that the most severe cases of Chagas' disease in Brazil begin in September and are most numerous in the summer, December and January, which is the period of maximum activity for *Triatoma infestans* and *T. megista*. These bugs are therefore more dangerous for man at that time of year, as has also been pointed out by Romaña.[8]

SUMMARY

The factors favoring infection of man with American human trypanosomiasis or Chagas' disease in Arizona are as follows: (1) recovery of infected bugs from beds of man; (2) prolonged close association of man with naturally infected insect vectors; (3) abundance of winged bugs (adults) during spring and summer months; (4) apparent tendency of winged adults to seek man as food; (5) tolerance of these pests by man while living in

* Identifications by Jack C. von Bloeker, Jr., Los Angeles Museum, Los Angeles, California.

loosely constructed houses or actually sleeping unprotected outdoors during warmer parts of the year, and (6) inability of man to control sources of insects, especially wood-rat nests.

855 North Vermont Ave.

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Otitis Media in Childhood

W. E. VANDEVERE, M. D.
and
M. P. SPEARMAN, M. D.
El Paso, Texas

ACUTE otitis media is one of the most common and serious diseases of infancy and childhood. An acute otitis media frequently merges into a chronic condition and the subject must be considered from the standpoint of etiology, diagnosis, pathology, complications, sequelae, prevention and treatment.

ETIOLOGICAL FACTORS

We may consider the middle ear as an accessory cavity to the nose and throat. The mucous membrane lining it is continuous with that of the naso-pharynx.

According to Semenov, the greater part of the middle ear is lined by a fibro-epithelial membrane, which is much thicker in infancy than in the adult. This lining attenuates during the first year of life, but while thickened it presents a serious problem. The lumen of the eustachian tube is lined by a layer of pseudo-stratified, ciliated columnar epithelium. The lining of the tympanic cavity consists of a layer of cuboidal cells and a thin deposit of connective tissue. The epithelium becomes thinner and flatter the further one passes from the orifice of the eustachian tube. There are no glands in the tympanic cavity. Ciliated epithelium appears in the tympanic orifice of the eustachian tube extending laterally to the lower border of the membrana tympani and medially as far back as the oval window. The epithelium in the region of the ossicles and throughout the greater part of the tympanic cavity and mastoid cells, consists only of a single layer of thin squamous cells.

Anatomical differences between the temporal bone of the infant and adult play an important role in the causation and progress of otitis media. The eustachian tube in the infant is shorter, more horizontal, and relatively larger than in the adult, making it easier for an infection to extend from the naso-pharynx through the tube to the middle ear. Also in infants vomiting and regurgitation of food may at times be an etiological factor.

Most acute middle ear infections result from an extension through the eustachian tube of a pre-existing naso-pharyngeal infection. This extension was formerly thought to be one of direct mechanical continuity, but recent studies show that infection may also be carried by way of mucosal blood and lymph channels of the eustachian tube.

Adenoid masses in children often become swollen in naso-pharyngeal infections and block the eustachian orifice, thus favoring middle-ear infection. Otitis media is most often due to the common cold, measles, scarlet fever, pneumonia, sinus infection and diseased tonsils.

Bacteriologically, the most frequent organisms found in otitis media are the streptococcus and the pneumococcus, type III. Less often is found the staphylococcus, diphtheria, colon and tuberculosis bacillus.

PATHOLOGY

Otitis media has been divided into the catarrhal and suppurative types. However, strictly speaking, the catarrhal type is not an infection, but involves a mechanical non-purulent exudate in the middle ear resulting from tubal closure, while purulent otitis media, no matter what the stage, is always an infection.

The lining mucosa becomes hyperemic and a serum exudate forms, which, if not relieved by spontaneous drainage through the eustachian tube, becomes purulent in nature and may extend into the mastoid cells and other structures. The ear drum at first is marked by reddening of the border, with a red streak along the handle of the malleus. Soon the entire drum becomes red, and later dull and bulging. At this stage the drum ruptures unless a tympanotomy is done.

A different picture from the above is seen in acute otitis media of infants where the drum mem-

brane is often only slightly reddened and there is only slight tendency to spontaneous rupture.

DIAGNOSTIC CRITERIA

In infancy, acute otitis media is marked by pain and restlessness and picking at the ear. There is a rise of temperature, often to 105 or 106 degrees, nausea and vomiting. Leucocytosis is increased and there may be marked gastro-intestinal disturbances.

Older children complain of pain and a stopped-up feeling in the ear. Furunculosis of the canal is distinguished by swelling of the meatus, a rather normal ear drum and pain on movement of the external ear.

It must be kept in mind that we may have a far advanced middle ear disease with complications due to the pneumococcus, type III, with few or no physical signs. A persistently high fever with leucocytosis in the absence of any discernible cause should direct one's attention to the ears even though there is little evidence of inflammation to be seen in this structure.

COMPLICATIONS AND SEQUELLAE

Mastoiditis is by far the most common complication of acute otitis media, and it is well to remember that in nearly every case of middle ear infection there is found a congestion of the mucous membrane of the mastoid cells. At this stage the x-ray picture frequently reveals a condition which if taken at its face value would lead to an unnecessary mastoid operation. Labyrinthitis, meningitis, petrositis, brain abscess, facial paralysis, perisinous abscess, sinus thrombosis, subperiosteal abscess, septicaemia, and impairment of hearing, with or without a perforated ear drum, and chronic aural discharge are some of the more important sequelae.

TREATMENT

Prevention is a large factor in the treatment of middle ear infections and complications.

Hypertrophied and diseased tonsils should be removed. This is especially true in the presence of repeated attacks of otitis media, and age should not be considered. At times it is necessary to remove tonsils and adenoids in children less than 1 year of age although it is preferable to wait until the age of 3. The physician does not hesitate to advise the removal of a diseased appendix at any age, and this rule should not be deviated from when it comes to the tonsils and adenoids, which are just as capable of causing disease and even death.

In all acute infections of the naso-pharynx some astringent drops should be used, such as neosilvol or neosynephrin, or one of the ephedrines.

Older children should be instructed that both nostrils should never be closed when blowing the nose. Care must be taken in swimming or diving, and must be prohibited altogether when there is a perforation in the drum membrane. Snuffing water or solutions into the nose may carry infections into the middle ear as well as the sinuses.

When pain and congestion begin to make their appearance in the ear, we give, in addition to the astringent nose drops, some local medication. We no longer use the time-honored 10% phenol in glycerine, but feel that auralgan, which is a higher glycerine and a more powerful hygroscopic agent, gives us much more relief without the macerating effect of phenol.

Once a middle ear infection is established an early and adequate tympanotomy will not only quickly relieve pain and discomfort but is our best insurance against complications.

It is sometimes difficult to convince the family that lancing the ear drum is not a certain road to permanent deafness. It is far better practice to incise an ear drum when pus has formed than to allow a continuance of pain, systematic absorption, danger of mastoid extension, necrosis of the drum and many other possible complications.

In infants and older children local anaesthesia consisting of equal parts of menthol, phenol and cocaine crystals is probably the best method. Infants apparently need little or no anaesthesia and seem to object more to being restrained while preparing for tympanotomy than the actual operation. It the older children and adults as well, the drum can be incised without pain by saturating a small pellet of cotton with the phenol, menthol, cocaine solution and pressing it in firm contact with the drum membrane. After 4 or 5 minutes the drum is inspected and if it has been bleached in one or two small spots we can be fairly sure there will be no pain. To be doubly sure, we can gently apply a probe to the drum and see if any sensation of pain remains. In the latter case we reapply the local anaesthetic for 2 or 3 minutes longer.

The incision in the drum should be in the posterior quadrant and should be ample for free drainage. After use of the local anaesthetic, alcohol should be applied to the wall of the canal and the drum membrane so as to neutralize the phenol.

That large group of children who, because of age or nervous temperament, cannot be reasoned with must be given a general anaesthetic.

Frequently small hemorrhagic blebs or blisters appear on the tympanic membrane which are easily nicked with a sharp pointed knife, without anaesthesia, affording much relief. The ear drum should not be incised in these cases unless there is definite evidence of middle ear abscess.

After treatment consists in having the mother or nurse frequently cleanse the ear with a bit of cotton on a match or toothpick, being careful not to go too deep into the canal. The child is seen by the doctor each day, and, after cleansing, a few drops of 1% acriviolet in 20% alcohol are dropped into the ear. If after a week the discharge is still profuse a saturated solution of boric acid in 60% alcohol is given to be instilled in the ear two or three times daily. Frequently we prescribe sulfanilamide. Scarlet fever cases are given sulfanilamide from the very first, because of its specific action. We use this drig in other middle ear infections when the fever is high and the symptoms severe, being careful not to overlook signs and symptoms which are sometimes masked by this agent. Re-

cently we have found sulfanilamide quite effective in infections due to the pneumococcus.

Of course, when an acute mastoid infection develops and progresses in spite of our treatment and care, we must do a simple mastoidectomy.

A discharging ear of long standing does not necessarily mean that a radical mastoid should be done. However, if the discharge remains foul in spite of treatment and if the general body health seems to be impaired because of the ear condition, then a radical or semi-radical mastoid operation should be done. If most of the ear drum is gone, it is just as well to do a radical mastoid, but if most of the drum is intact it should be saved by doing a modified radical operation. These operations do not always result in a dry ear, but they do insure against serious intra-cranial complications.

SUMMARY

1. The anatomy of the ear and the abundance of lymphoid tissue in infancy and early childhood is such as to favor middle ar infections.

The most common infective organisms are the streptococcus and pneumococcus, type III.

2. An early and adequate tympanotomy in acute otitis media relieves pain, reduces fever and often avoids complications.

A local anaesthetic consisting of equal parts crystals of menthol, phenol and cocaine or a general anaesthetic with ethyl chloride is used in children.

3. When tonsils and adenoids are a factor in causing repeated attacks of otitis media they should be removed regardless of age.

A child with a perforation in the ear drum should not be allowed to go in swimming.

4. Sulfanilamide is used in all cases of scarlet fever and the more severe cases of acute otitis media.

Sulfapyradine has been found effective in acute otitis media due to the pneumococcus.

First National Bank Building.

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Normal Blood Counts of Mexican Children of Tucson, Arizona*

EDWARD L. BREAZEALE, M. S.
and
ROBERT A. GREENE, Ph. D.
Tucson, Arizona

NORMAL hematological values for children of different age groups are available, but to our knowledge no study has been made of Mexican children of Southern Arizona. It seemed desirable, therefore, to determine the normal hematological values of such a group.

EXPERIMENTAL

A group of 192 Mexican children (95 female, 97 male) were examined. The children were from the fifth and sixth grades of the Tucson public schools. The average age was 12 years, although a few were slightly younger or older. All were of average height and weight, and apparently were in good health.

All specimens were taken in mid-afternoon. Total erythrocyte and leukocyte, and a differential count (Wright's stain) were made. Hemoglobin was determined by the Tallquist method. The pipettes and hemocytometers had been carefully checked before use. The corpuscle suspensions were mixed in a Bryan-Garrey pipette rotor (A. S. Aloe Co.).

* From Arizona State Laboratory ,Tucson.

RESULTS

The results are given in Table I.

DISCUSSION

These results, in general, compare well with those obtained in corresponding age groups of children of other races. When compared to the results which have been summarized by Levinson and McFate,[1] the values for hemoglobin and erythrocytes are somewhat lower than those for children of other races. Leukocyte and differential values agreed well with those of corresponding age groups.

It is interesting to note that although hemoglobin was determined by the Tallquist method, which is usually not considered very accurate, the results agreed fairly well with those of children of other races. However, the values for Mexican children were somewhat lower. In a small series, hemoglobin was determined, simultaneously, by the Tallquist and acid hematin methods (Sahli and Newcomer). The agreement between the methods was excellent, which suggested that the Tallquist method might be more accurate than is generally believed.

CONCLUSIONS

The average blood counts of Mexican children agreed well with averages of other children in the corresponding age groups.

The Mexican children were characterized by slightly lower numbers of erythrocytes and a smaller amount of hemoglobin.

University of Arizona.

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Table I
NORMAL BLOOD COUNTS OF MEXICAN CHILDREN

	FEMALE			MALE		
	LOW	HIGH	AVERAGE	LOW	HIGH	AVERAGE
Erythrocytes (millions)	3.5	6.5	4.55	3.5	6.5	4.82
Leukocytes (thousands)	4.0	16.6	6.69	4.8	29.5	7.75
Hemoglobin (grams)	11.0	17.0	14.70	10.4	17.0	12.40
Hemoglobin* (per cent)	65.0	100.0	87.00	60.0	100.0	72.50
Neutrophiles (per cent)	30.0	77.0	60.05	24.0	76.0	58.50
Basophiles (per cent)	0.0	2.0	0.23	0.0	6.0	0.16
Eosinophiles	0.0	12.0	0.71	0.0	14.0	1.10
Large Lymphocytes	3.0	16.0	8.30	2.0	24.0	7.85
Small Lymphocytes	6.0	52.0	26.20	8.0	38.0	25.00
Monocytes	1.0	12.0	5.05	1.0	22.0	5.50

*100% equals 17.0 grams.

Regional Ileitis

(Case Report)

J. LEIGHTON GREEN, M. D.
and
H. H. VARNER, M. D.
El Paso, Texas

IN 1932 a new clinical entity was described by Crohn, Ginzburg and Oppenheimer.[1] They named it regional ileitis. They defined it as "a disease of the terminal ileum, affecting mainly young adults, characterized by a subacute or chronic necrotizing and cicatrizing inflammation." A backward glance over the literature reveals that a similar pathologic condition had been previously described, but under a variety of names. Non-specific granuloma was the name frequently used. For many years surgeons had encountered localized inflammation of the bowel, etiology unknown.

In 1806 Combe and Saunders[6] described under the title, "A Singular Case of Stricture and Thickening of the Ileum," what may well have been regional ileitis. They included no microscopic study of the diseased bowel, but their gross description is suggestive. John Abercrombie[7] published in 1828 a book in which he presented a case in a girl 13 years old. In 1882 Moore[8] published the first microscopic and gross description of a case of regional ileitis with intestinal obstruction. He reported the absence of tuberculosis or carcinoma, and stated that the obstruction was due to "long-continued inflammatory changes."

W. J. Mayo in 1893 reported a group of non-tuberculos inflammatory lesions of the ileocecal coil. In 1895, Senn[9] described inflammatory tumors of the bowel. Cases of similar disease are found reported by Wilmanns[9] in 1905, Moynihan[10] in 1907, and Robson[11] in 1909. Braun[3] also published a report of the disease in 1909. In 1923, Moschcowitz and Wilensky[4] described granulomatous tumors of the bowel in four patients. Mock[5] in 1931 reported a group of cases of granulomatous intestinal lesions and excluded tuberculosis, syhpilis, pathogenic fungi, parasites and lymphosarcoma as etiologic factors.

It remained, however, for Crohn and his colleagues to assemble various terminologies under one concise name, accurately describing the pathology of this disease, and directing the attention of American surgeons to it. Since 1932 the literature has been full of reports. Surgeons who had previously observed a thickened and reddened terminal ileum when operating for appendicitis, recalled these cases and looked sharply for new ones. It was soon apparent that the disease was not rare. By 1937 Jackson[12] could collect 219 cases reported in the American literature since Crohn's original article, and he described four additional cases. In the 6 years following Crohn's report between 500 and 600 cases were reported in more than 100 publications.[16] Crohn[13] was able last year to report 110 cases he had personally observed, in 73 of which the diagnosis was confirmed by operation.

ETIOLOGY

Because giant cells appeared in microscopic sections, regional ileitis was thought to be a manifestation of tuberculosis. But it has been demonstrated definitely that this is not a tuberculous lesion. Pumphrey[14] attempted to isolate a microorganism, concluded that no specific bacterium was the causative agent, and that the etiological

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factor in regional ileitis was unknown. Morlock[15] *et al* reported two cases which developed following trauma to the abdomen. They believe several factors are necessary for production of these lesions: First, a predisposing factor such as trauma; second, blockage of the lymphatic channels, and, third, an infecting organism.

PATHOLOGY

The disease is most frequently found in the terminal ileum. Indeed, it was first named "terminal ileitis." But any portion of the ileum may be involved, even jejunum having been affected. Irregular segments of bowel may be affected, with normal intestine between. In the early phase, the characteristic picture is a soggy, thickened, edematous segment of ileum with blotchy red serosa. Seen not infrequently at appendectomy, such an intestine is not resected, hence study of mucosal lesions has been impossible. The mesentery at this stage is thickened and contains numerous hyperplastic nodules. In somewhat more advanced stages, evidence is found pointing to the mucosa as the seat of origin of the lesions. Small oval ulcerations are present in the mucosa, located on the mesenteric border. Submucosa and muscular layers show marked hyperplastic and exudative changes, producing an enormous thickening of the bowel wall, to two or three times its normal size. This thickened wall encroaches on the gut lumen until stenosis is produced, progressing at times to almost complete obstruction—as in our case. Ileum proximal to the lesion dilates gradually, may attain a size larger than the colon. There may be alternate areas of constriction and dilatation. Later in the disease, this exudative process is replaced by a marked fibrosis, which extends even into the mesentery of the involved segment. Such fibrotic stenosis gives the intestine an appearance like a piece of hose.

When terminal ileum is involved, most marked changes occur about the ileocecal valve. This stenotic ileocecal junction and adjacent hyperplastic terminal ileum form a mass which may be palpated on clinical examination of the right lower quadrant.

There is a tendency in advanced cases for slow perforation of the bowel to occur. Fistulas may form between adjacent loops of intestine or between intestine and other viscera, walled off before perforation becomes complete. Fistulas through the abdominal wall have followed apendectomy or other operation. Such a fistula is difficult to close because of the underlying pathology, a chronically inflamed bowel.

Microscopically, there are no distinguishing features by which regional ileitis can be differentiated from other inflammations of the intestine. All the changes characteristic of acute, subacute and chronic inflammation may be found in one section. Giant cells may be present, due to foreign body reaction.

CLINICAL ASPECTS

In its early, acute stage, regional ileitis cannot be clinically differentiated from acute appendicitis. Pain and tenderness are present in the right lower quadrant. Low-grade fever, nausea and vomiting, and leucocytosis complete the picture. Such a picture justifies appendectomy. In many patients later treated for regional ileitis, appendectomy scars have been present. In the series of 44 patients reported by Dixon and Clark," 24 had previously been subjected to appendectomy.

As the disease progresses into a second stage, intermittent attacks of diarrhea are characteristic. At this time, a diagnosis of ulcerative colitis is often made. The patient complains of fatigue, general malaise, and loss of weight. Stools are frequent, watery, and accompanied by cramping pain. Periods of constipation may alternate with attacks of diarrhea. Abdominal pain of a dyspeptic or cramping nature is usually the chief complaint. Obstructive features soon predominate. Anemia develops, low-grade fever begins, and frequently a mass can be palpated in the right lower quadrant.

Remission of symptoms may occur in the first or second stages. As stenosis advances, remissions are shorter and less frequent. Diarrhea becomes worse. Obstructive symptoms and signs are definite. Borborygmus and visible peristalsis are detected. The stools constantly contain occult blood. Malnutrition and anemia become prominent because vomiting limits intake while diarrhea causes much loss of fluid.

The fourth stage of the disease is reached when obstruction becomes acute or when perforation of the bowel occurs, with formation of an abscess or fistula. The fistula may communicate with adjacent intestine, other viscera (such as bladder), or abdominal wall. Sepsis and loss of nutrition may produce a fatal termination.

DIAGNOSIS

When any young adult male complains of symptoms in the right lower quadrant, regional ileitis should be considered. (The age of patients in Crohn's 1932 series ranged from 17 to 52, but the disease has been diagnosed at post-mortem in a child 2½ years old.)

Clinically, attempt should be made to differentiate from appendicitis, intestinal tuberculosis, chronic non-specific ulcerative colitis, and the deficiency states. X-ray after administration of a barium meal is the most valuable diagnostic aid. A narrowing of the lumen—the so-called "string" sign—is significant, and usually there is dilatation of the bowel above such a constricted area. The mucosal pattern of the involved segment is altered and may show defects. In our case, diagnosis was made by x-ray. Puddling was seen in the dilated bowel.

A barium enema generally reveals nothing of importance, since the colon is not involved. Should some barium pass through the ileocecal valve into the terminal ileum, evidence of terminal ileitis might be detected. Even by roentgen examination, however differentiation from tuberculous enteritis cannot always be definite. And even at operation, this distinction may be impossible. Accurate diag-

nosis must be made by the pathologist on examination of the excised segment.

TREATMENT

The treatment of this disease is surgical. Early stages have been observed the bowel dropped back into the abdomen without any surgical procedure. While a few of these remained well for years, many appeared later for treatment for advanced ileitis. Most patients come to surgery in an advanced stage. Resection in two stages is then the best procedure. Short-circuiting about the involved segment should be done at the first operation. Later, resection should be performed after the patient's general condition has improved—perhaps after 2 or 3 months. Where terminal ileum is involved, this means performing ileocolostomy, connecting the undiseased ileum with transverse colon, later resecting diseased ileum with cecum and ascending colon. Where the lesion is situated elsewhere in the ileum, side-to-side anastomosis of ileum may be required, with later resection of the involved loop. Dixon[15] decries the opinion that regional enteritis will subside on a medical regimen alone. In advanced cases with fistulas and perforations, the surgeon's ingenuity and patience may be severely taxed.

CASE REPORT

A large white male, age 47, came under our observation in September, 1935, with vague gastro-intestinal symptoms. He complained of a burning sensation in the epigastrium after meals. Large of frame, the patient weighed 258 pounds. Examination found only moderate tenderness in the gallbladder region. The abdomen was quite fat. October 8, 1935, a gastric analysis was made, reporting at 60 minutes a free hydrochloric acid reading of 90, a total of 106.

Treatment with alkalies gave some relief, though the patient complained of gas and epigastric discomfort.

Appendectomy was performed April 23, 1939, followed by temporary relief of symptoms. In a few weeks, however, epigastric pain recurred. In December, 1939, cholecystogram revealed an atonic gallbladder. Basal metabolic rate was found on December 23 to be —10. The patient's weight had dropped to 229 pounds.

In January, 1940, for the first time an indefinite mass was palpable below the left costal margin. The patient improved in general well-being while taking thyroid extract, but gas and abdominal pain persisted. He restricted his diet and continued to lost weight, reaching 210 pounds on May 20, 1940.

In August, 1940, he complained of pain beneath the right costal margin, intermittent and severe. He said he could feel a knot push up beneath the ribs with each pain. Bowel function was normal. No nausea or vomiting had occurred. His weight now was 197. There was rigidity in the gallbladder region, recurring every 4 or 5 minutes, coincident with pain. Borborygmus was marked. X-ray examination was made after ingestion of a barium meal, and Dr. C. H. Mason made a diagnosis of high regional ileitis with partial obstruction. Upper coils of ileum were greatly dilated. A second x-ray on August 21 confirmed these findings.

On August 26, 1940, the patient was admitted to Hotel Dieu. Routine blood examination showed a hemoglobin of 80%, with 4,350,000 red blood cells. White blood count was 9,200 and the differential was normal. Urinalysis revealed nothing abnormal. A mass could be palpated to the right of the umbilicus. The skin of the abdomen hung in great folds, evidence of loss of weight.

August 27, laparotomy was performed through a high right rectus incision. The proximal half of the ileum was found dilated to the size of colon, its walls quite thin. Distal to the distended loop was an indurated mass involving a constricted loop of ileum and surrounded by plastic exudate. Several large mesenteric nodes were palpable adjacent to the mass. Distally, the ileum was collapsed. The terminal ileum was adherent about the pelvic brim and could not be freely mobilized. There was no evidence of recent inflammation of the terminal ileum, and the ileocecal junction appeared normal.

Anastomosis around the dilated ileum was not practical, for dilatation extended to jejunum. Malignancy could not be definitely ruled out. A mesenteric node was excised for examination. The obstructed loop of ileum was exteriorized in a Mikulicz procedure. The abdomen was closed without drainage.

Collapse of the upper intestinal tract was attempted with duodenal suction. Forty-eight hours after operation, the exteriorized loop was excised. Dr. W. Waite reported acute inflammatory reaction in the constricted loop and in the mesenteric node, with no sign of malignancy.

On September 2, 1940, the original incision was walled off and a second laparotomy was done through a left rectus incision. The upper ileum was still dilated to twice normal size, but appeared in better condition. Without disturbing the ileostomy, side-to-side anastomosis of the ileum was done, uniting loops above and below the ileostomy. Later, the spur between openings of the double-barreled ileostomy was cut down. Closure of the ileostomy was done on September 7 and again on September 16, using local anaesthesia, with complete failure. September 30 a general anaesthesia was administered and a more careful closure performed, with partial success. Some drainage persisted from the fistula. A catheter was kept in the lower arm of the ileum, and through it nourishment was supplied by Murphy drip. Bile aspirated from the indwelling Miller-Abbott tube was returned to the intestine by this drip method. Altogether five transfusions of blood were given. The patient had practically no nourishment by mouth for 7 weeks. His condition remained surprisingly good. The only occasion when his condition seemed critical was following a reaction to intravenous glucose on September 10.

The patient was able to leave the hospital on November 17, 1940. On December 16, 1940, he was feeling well, had made a 1,200-mile trip, was eating a fairly complete diet. His weight was 182. The wounds were completely healed.

SUMMARY AND CONCLUSIONS

1. Regional ileitis is a definite clinical entity characterized by gastro-intestinal symptoms which in the acute stage resemble acute appendicitis and in a later stage may progress to obstruction of the ileum.

2. Etiology is unknown. Pathologically, the disease shows acute and chronic inflammation.

3. Diagnosis is most frequently made by x-ray.

4. Treatment is removal of the diseased segment of ileum.

5. A case is reported in which ileitis produced almost complete obstruction.

El Paso National Bank Bldg.

(Bibliography continued on page 122)

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WILLIAM PAUL HOLBROOK, M. D.

At the recent session of the Arizona State Medical Association in Phoenix, Dr. W. P. Holbrook of Tucson was elevated to the presidency.

Doctor Holbrook was born in 1898 in Springfield, Ark. He received his pre-medical training at the University of Washington where he graduated with a B. S. degree. He was graduated from the University of Oregon Medical School in 1924 with the degree of Doctor of Medicine. Immediately following this he held the position of instructor in medicine and laboratory diagnosis in the same university for one year. He interned at Letterman General Hospital in San Francisco, Calif. His specialty is internal medicine and he has been certified by the American Board of Internal Medicine.

He was married in 1924 to Margaret Bressler. They have three children: John Paul, William Bruce and Elizabeth.

Doctor Holbrook has been practicing medicine in Arizona for the past 13 years. Prior to coming to Arizona he practiced medicine in California.

His professional memberships include the following: Pima County Medical Society, Arizona State Medical Association, American Medical Association, American College of Physicians (Fellow), American Heart Association, American Rheumatism Association, Ligue Internationale Contre le Rhumatisme.

Other memberships held by him are Nu Sigma Nu (medical), Pi Kappa Alpha (social), Alpha Omega Alpha and Sigma Xi (honorary).

Doctor Holbrook has made a number of contributions to medical literature, several of his publications being on the subject of rheumatic disease and cardiovascular disease. He is co-author of the American Rheumatism Review.

THAT VERDICT

Among the interesting comments on the recent paradoxical verdict *against* the organization but *for* the individuals composing that organization (!) is this from the Chicago Tribune:

The antitrust conviction may impress upon the members of the A. M. A. that when they organized they took out the wrong kind of a charter. They should have applied to William Green or John L. Lewis. So equipped, they would not have been reduced to refusing to practice in the same hospitals with a physician who signed up with Group Health. Dr. Morris Fishbein could just have gone around some evening and broken the wrong guy's fingers with a blackjack, an operation that does a surgeon no more good than it does a musician, and Mr. Justice Frankfurter would have told Thurman Arnold not to get himself all wrought up over a passing moment of animal exuberance.

A good broad A. F. L. or C. I. O. charter would solve a lot of the medical profession's economic problems. Its members would not have to worry about overproduction of doctors. They could just close their membership rolls and have some of their members, sitting on the state and local examining boards, prosecute the newcomers for practicing without a license.

Draft boards wouldn't be asking physicians to give their services free for examination of the draftees. All the chest thumping in charity wards would be done at the union scale and any non-union medico who tried to cut in on the business would have to pay a $1,000 initiation fee. Ladies expecting offspring would have to be careful that the labor pains did not start after 4 p. m. on a Friday; otherwise papa would have to pay double time for a week-end delivery.

The medical union might be able to take on a number of profitable activities that A. M. A. members now deny themselves, such as performing abortions, or, for a suitable fee, slipping a dose from the black bottle to millionaires whose heirs were growing impatient. While such activities might arouse public protest, the union docs could be sure that President Green would not bother them. That would be interefering with their autonomy.

The dear old Tribune may have something there at that. Dear John, when can you send the muscle men?

UGLY TEETH

Those shiny fangs of your favorite movie "star" may be alluring in the way they flash highlights, but their resemblance to pearls may be their chief virtue. As far as the inroads of caries is concerned, it would seem that more resistance to this unwelcome disease is possessed by the unsightly mottled tooth seen often in the Southwest. Certain areas of West Texas and Eastern New Mexico contain deposits of soluble floride salts, solutions of which enter the drinking water of those regions. It is well known that many users of such water develop a peculiar, brown mottling of the teeth. The idea at first was that such teeth were terribly damaged. But slowly the conviction has grown that these discolored teeth were, in some ways, better as teeth than the shiny beauties of the toothpaste advertisement. An now interesting conclusions are drawn by Dean, Jay *et al*,[1] in a study of teeth in a mottled-enamel area in Arkansas. These are:

1. Bauxite pupils with moderate to severe mottled enamel and exposed to flouride-free waters during the past 12 years showed markedly less dental caries than a comparable group of Benton pupils without mottled enamel who had been using a flouride-free water during their lifetime.

2. This limited immunity from dental caries is seemingly not dependent upon the presence of macroscopic mottled enamel because children born within several years of the change in the water supply and practically free of mottled enamel likewise disclosed a low dental caries experience.

3. The youngest age group at Bauxite—those farthest removed in time from the influence of the "old" high flouride water—shows the highest dental caries experience in spite of the fact that they had been exposed to risk of caries for the shortest period of time.

4. The *L. acidophilus* counts apparently reflect a difference in caries activity in the several groups studied, a result which is seemingly consistent with the clinical findings in these groups.

5. Teeth moderately to severely affected with mottled enamel showed no tendency to rampant dental caries even though they had been exposed to a fluorine-free water for the past 12 years.

So, pretty or not, the mottled-tooth lad may be chewing luscious steaks with his own equipment longer than his more shiny-mouthed friend in Hollywood. Maybe we'll be adding small amounts of fluoride to all water for domestic use one day to come.

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NORTH AND SOUTH

The El Paso Herald-Post says:

The El Paso Tuberculosis Society will campaign against expectoration on the streets and will seek medical examination for domestic servants, Mrs. John G. Barry, re-elected president, announced.

The objectives are two of a full civic program outlined at the first meeting of the fiscal year held at Hotel Cortez.

"We believe that examination of domestic servants and the prevention of expectoration on the streets are two necessary health measures that should be enforced rigidly in El Paso, a health center," said Mrs. Barry.

Agreed! Splendid! But why stop there? Why not do some examining of employers as well?

For a long time it has been a popular pastime in El Paso to blame all our poor health record on that area "south of the tracks." Simple honesty in facing the facts would be helpful. There are a great many open, infectious cases of tuberculosis north of those convenient tracks that no one seems to be concerned about. And most of these patients do a lot more traveling and spreading in the city and elsewhere than any of their less monied servants can possibly do.

Let the whole picture be scrutinized!

NEW MEXICO MEETING

Don't miss reading in this issue the program of the Raton session of the New Mexico Medical Society. It represents one of the best balanced schedules given in the Southwest.

A good portion of the meeting is to be devoted to motion pictures—a splendid teaching medium. This is certainly a worth-while innovation.

Those fortunate enough to be in attendance at this meeting will be highly repaid for their trip.

MEDICOFILM SERVICE

This microfilm copying service of the Army Medical Library has been established for the purpose of rendering the literature resources of this library available to the many research workers at a distance from Washington, who are unable to come in person to consult its extensive collections. This is accomplished by copying photographically upon microfilm, the pages of medical periodicals containing descriptions of original research, and sending these to persons engaged in the advancement of medical science. This plan avoids the disadvantage of loaning the journals themselves and thus impairing the reference character of the library. Microfilm copying, therefore, provides an improvement and extension of the service to research and learning which it is the function of scientific libraries to render.

Advantages of Microfilms. This method of photographing in reduced size upon moving-picture film is the most economical procedure so far devised for making a single copy of printed material. It permits the research worker to secure copies of the papers upon a given subject at a far less cost than is possible in any other way. The microfilm copies so made can be attached to sheets of paper and filed in the same manner as reprints or manually prepared notes. They supplement at relatively little cost the collections of research papers made in other ways, and permit assembling, in the most convenient form, the large numbers of widely scat-

(Continued on page 128)

REGIONAL ILEITIS

(Continued from page 119)

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COMMUNICATIONS

Sir:

Dr. Hugh Chaplin, Clinical Professor, Department of Pediatrics, New York University and Bellevue Hospital Medical College, has this to say about comic magazines: "There is no doubt that many children are greatly disturbed by the lurid stories and frightening pictures appearing in a number of the comic strip magazines. To say that their minds are over-stimulated puts it mildly. Not a few receive such violent mental shocks that their sleep is disturbed; it is weeks before the memory of the unreal and frightening tale gradually disappears from their sensitive and impressionable minds."

As an antidote for the lurid "comic" magazines which are read widely by children in spite of protests of parents and teachers, the publishers of PARENTS' MAGAZINE announce a new bi-monthly magazine, TRUE COMICS. It is the first educational magazine ever published in the popular "comic" format so attractive to children. There are about 75 so-called "comic" magazine, few of which even pretend to be funny. They largely dish up fantastic excitement, in colored picture form, portraying impossible, often grotesque characters.

The publishers of PARENTS' MAGAZINE have no quarrel with newspaper comic strips, but believe with many pediatricians, child psychologists and educators that the present "comic" magazines are definitely objectionable, over-tsimulating reading for young minds.

The only simliarity of TRUE COMICS to the present flood of "comic" magazines is in format. Its 64 colored picture-pages portray exciting events of present and past history. Using the adventures of the world's greatest heroes and heroines as story material the editors have created a magazine full of stirring drama that boys and girls of all ages will thoroughly enjoy. Parents have tried prohibition in their fight against the lurid "comic" magazine with little success. Now they have a wholesome substitute to offer that, we believe, their children will gladly accept.

I am sending you herewith an advance copy of the first issue, as well as full data about it.

Cordially yours,

GEORGE J. HECHT,
President and Publisher.

NEWS

General

A "post graduate" Institute of Industrial Medicine and Industrial Hygiene, attracting industrial health specialists from all parts of North and

South America, will be held in Pittsburgh, May 5 to 9. Papers and discussions are scheduled on the medical and engineering phases of employee health protection.

The Institute is the 26th annual meeting of the American Association of Industrial Physicians and Surgeons, and the second annual meeting of the American Industrial Hygiene Association. Majority of the sessions will be held at Pittsburgh's William Penn Hotel.

El Paso

The staff of Hotel Dieu met on March 4 in the auditorium of the nurses' home. The program: "Review of Pneumonia Cases in 1940," Dr. E. W. Rheinheimer; "Mixed Cell Tumor," Drs. B. F. Stevens and W. W. Waite.

Drs. C. P. Brown and J. L. Murphy have announced the association of Dr. H. E. Haffner with them in the practice of surgery. Their offices are in the Roberts-Banner building.

Dr. and Mrs. C. N. Giere are the parents of a baby girl, born in February at Wm. Beaumont General Hospital

The El Paso County Medical Society met on February 24 at the Hotel Cortez. The program: "Obstetrical Hemorrhage," Dr. B. H. Passmore, San Antonio; "Use of Sulfonamides in Conjunction with Other Therapeutic Agents, Dr. Robert L. Moore, Dallas; "N. Y. A. Contracts with State Medical Association," Dr. G. F. Thornhill.

At the March 10 meeting of the El Paso County Medical Society the following program was given: Symposium: "What's New in Sulfonamide Therapy"—"In Medicine," Dr. C. D. Awe; "In Pediatrics," Dr. I. M. Estein; "In Surgery," Dr. R. B. Homan, Jr.; "In Obstetrics," Dr. C. F. Rennick; "In Otolaryngology," Dr. W. E. Vandevere; "In Urology," Dr. R. F. Thompson.

The El Paso County Medical Society and the El Paso County Dental Society entertained at dinner and dancing February 25 in honor of the officers of the Medical Department, Fort Bliss, and the Wm. Beaumont General Hospital. A cocktail party preceded the dinner, which was held at the country club. Committees from the Woman's Auxiliary of both host societies helped in planning the party.

New Mexico

At the regular meeting of the Medical Staff of St. Mary's Hospital, Gallup, New Mexico, on February 12, 1941, a Symposium on Fractures was presented, Dr. E. A. Campbell presiding.

Dr. Vincent Accardi spoke on Head Injuries, taking up briefly the consideration of skull fractures, cocussion and contusions of the brain, their diagnosis and treatment. Basal skull fractures most serious. All cases suspected of brain injury should have a spinal tap. If severe head injury was sustained, patient usually dies of edema of the brain.

Dr. H. T. Watson gave a short resume of a fracture case treated at St. Mary's Hospital, in April, 1940. No. 439—Mrs. M. P., a white woman, age 72, suffering with an old arthritic condition, who twisted her foot under a door, while walking on crutches. Sustained a fracture of left tibia and fibula, just above ankle joint, the malleoli and foot displaced far laterally. Kirschner wires were placed through os calcis and upper end of tibia. DePuy extension frame and traction were applied. Several x-ray films were viewed, showing progress of case and excellent position of bones obtained. Woman now able to walk on crutches, as before injury, with no apparent discomfort.

Dr. J. F. Smith spoke on Fractures of the Nose. These fractures are very important when they cause changes in nasal cavity. With early treatment deformity can be corrected with tamponades. Severe cases may be corrected, under local anesthesia, by manipulation and an appropriate tamponade. If fractures are extensive, infection may lead to Meningitis.

Dr. W. D. Anthony gave a brief discussion of Fractures of the Long Bones, stating that many cases are brought long distances, over rough roads, without application of splints, causing bones to become very much displaced. X-ray films of three different cases were shown, illustrating use of Kirschner wires, metal bands and plates, and the results obtained. Metal bone plates may be left in, as a rule, but bands may later cause a pathological fracture if not removed.

Dr. D. M. Mac Cornack presented a paper on Fractures of the Newborn or Birth Fractures. This paper emphasized the importance of taking x-ray of all infants, after difficult deliveries, such as version and extraction and frank breech cases. Bones usually heal easily and leave no deformity. Clavicle, humerus and femur bones most frequently broken.

AUXILIARY NEWS

The El Paso Auxiliary met at the home of Mrs. R. B. Homan, Sr., on March 10. Officers for the coming year were announced as follows:

President	Mrs. A. P. Black
1st Vice-president	Mrs. L. W. Breck
2nd Vice-president	Mrs. S. G. Von Almen
3rd Vice-president	Mrs. J. Rogde
Recording Secretary	Mrs. J. L. Stowe
Corresponding Secretary	Mrs. P. E. McChesney
Treasurer	Mrs. Earl Rogers

The nominating committee consisted of Mrs. James Laws, Mrs. George Brunner, Mrs. George Turner, Mrs. Orville Egbert and Mrs. Leslie Smith.

MISCELLANY

OTITIS MEDIA

1. Those treating acute otitis media should be familiar with the anatomy of the temporal bone and the symptoms and physical signs of otitic infection.

2. The anatomy of the eustachian tube in infants and young children lends itself to the spread of infection from the nasopharynx to the tympanic cavity.

3. With the first symptom of otitis media the patient should be put at rest and proper treatment instituted.

4. Myringotomy should be performed when the inflammation in the tympanic cavity shows no tendency to undergo resolution.

5. Repeated incisions of the tympanic cavity are rarely indicated provided the first incision is adequate.

6. When sulfanilamide is used, the patient should be under close observation.

7. A mastoidectomy is indicated when the discharge has continued into the second or third week with clinical or roentgen-ray evidence of bone destruction of the mastoid.—*Penn. Med. Jo.*

CORONARY OCCLUSION

Give ¼ or ½ gr. of morphine promptly and repeat in 1 hour or less if pain persists, and do not move the patient from the place of attack if it can be avoided. If there is fibrillation give quinidine, and if severe give it intravenously in large doses. When a rapid ventricular rate persists or if signs of congestive heart failure supervene, give digitalis by mouth or intravenously. Aminophyllin, 1½ gr. four times a day, probably increases the coronary circulation. Fifty cubic centimeters of a 50% solution of glucose may be administered slowly into the vein once or twice a day and often checks nausea and vomiting as well as having a nutritive, stimulating and diuretic effect. Adrenalin is of value in some heart block cases and when pulmonary edema occurs. After 24 to 48 hours mild laxatives or a soapsuds enema may be necessary. All cases require at least 6 weeks in bed and some much longer. Exercise is increased slowly after the period of absolute bed rest. Permanent sub-par activity should be advised.—*Jour. M A.S.A.*

CRIMINAL ASPECTS OF FAITH HEALING

To most citizens it is a novel idea that faith healing has criminal aspects, yet if one remembers the saying of a distinguished historian that "liberty, next to religion, has been the motive for good deeds and a common pretext for crime," one should not be surprised that even the practice of faith healing may on occasion violate the law of the land. As the author of an article points out, the government interferes, not with religious opinions, but with the acts of individuals, it discriminates among acts expressive of religious belief, no matter how logically or illogically they may be derived from the belief, and decides that some are in violation of the law and that others are not.

It is clearly within the rights of a community to protect itself from a communicable disease in any way approved by the best scientific opinion, whether by mere restraint or isolation or by specific treatment, according to the nature of the disease and the risk of transmission from the patient to other persons. If the disease is noncommunicable and occurs in an adult of sound mind, it is generally, if not always, agreed that it is for the patient to decide whether medical advice shall be sought, and if sought, whether it shall be followed. It is in the case of noncommunicable disease occurring in the legal "infant" that controversy has been most violent. Yet here also the decisions of the courts are clear; any person who has the custody of a child is under a duty to supply the "necessaries of life, medical attention . . . included."

—*N. E. J. of Med.*

SOLDIERS HEART

British medical officers are being prodded, it appears, by the Government on account of the losses in troop efficiency caused by the number of casualties from "soldiers heart." Not only the losses due to soldiers on the sick list but also related losses—doctors, nurses, attendants caring for these casualties; and the money losses incident to the long convalescence and eventual life time pensioning involved in almost all cases of "soldiers heart."

The latest British medical journals received in this country publish articles and other comment on this subject which has been repeatedly discussed in these journals, following the beginning of World War II. The British name for soldiers heart is "effort syndrome."

The likelihood that cases of soldiers heart would unwittingly multiply in the greatly expanded American Army has been discussed during the past few months at convocations of several state and national medical associations. Medical officers of the Army have addressed the members of these associations on the subject of soldiers heart.

The latest issues of the British Lancet and British Medical Journal have shed more light than heretofore on methods for the detection of soldiers heart in men about to be inducted into the services to the end that such men may be rejected at the primary examining stations. No effort appears to have been made to ascertain the cause of soldiers heart. Indeed, there is reason to believe that medical officers consider that soldiers heart is not a disease at all but rather it is a manifestation of heredity; the result of unaccustomed strain; or debilitating illness.

Soldiers heart has been a "headache" to Army

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doctors, especially in war, during the past three quarters of a century. It plagued the medical men in the War of the Secession. In World War I, British army doctors put 70,000 soldiers on the sick list with "cardiacvascular diseases." Of this number, only 10,000 actually had heart disease while the balance were afflicted with "soldiers heart."

As a direct result of the acceptance of soldier heart applicants into the British Army in the last war, forty-four thousand of these soldiers were made pensioners for life.

The apparent confusion with regard to requisite knowledge to enable medical officers to reject men afflicted with soldiers heart is markedly reflected by the widely varying names which have been tacked onto this affliction: "irritable heart"; athlete's heart"; "effort syndrome"; "soldiers heart"; and "neurocirculatory asthenia" which is associated with morbid fatiguability; with irritation of the nervous system.

Paradoxically, it sems, a soldier afflicted with soldiers heart does have a perfectly good cardiac organ in itself but it "acts up" under only ordinary strain and renders the man unfit for normal duty.

The practical inability of medical officers to detect cases of soldiers heart when recruits are being examined appears to be due to the fact that the heart itself is healthy; it "pounds and palpitates" in circumstances where normal soldiers are unaffected.

The sure indications of soldiers heart are apparent after the men afflicted with it are already in the Army which is bound thereafter to undertake their hospitalization—short breath; anxious face; rapidly acting heart; left breast in distress; dizzy. The British army records show that only 15 per cent of soldiers heart cases ever recover.

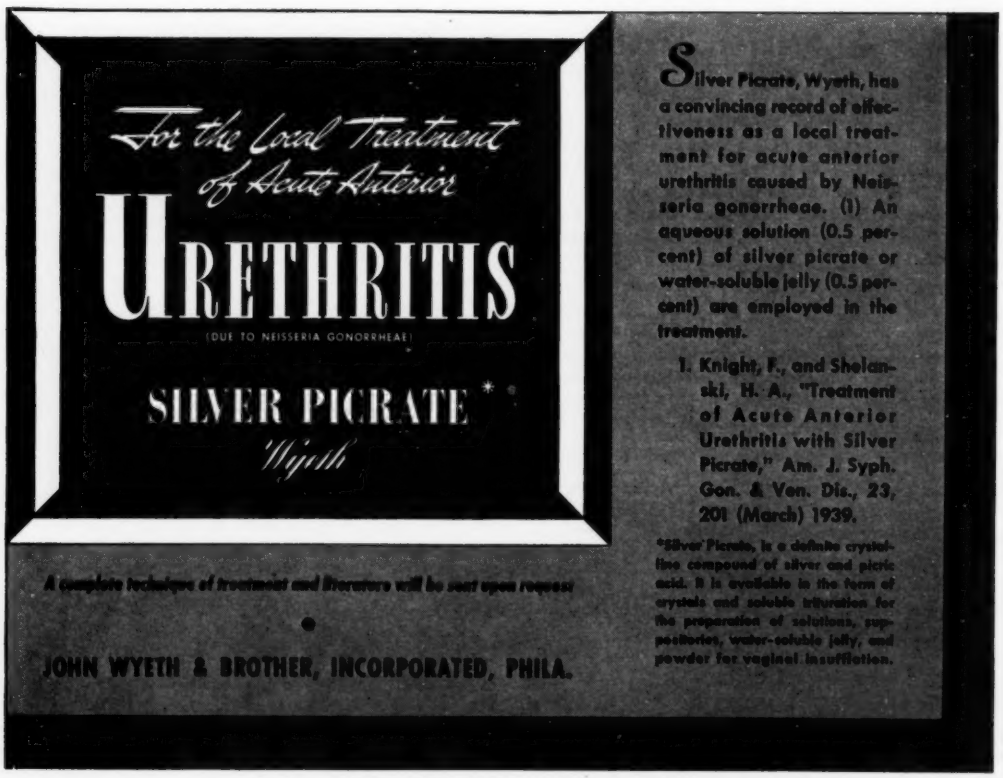
British medical officers have been instructed to watch for soldier heart cases at primary examination stations, the following "symptoms" are listed —the markedly non-athletic type; men abnormally predisposed to sedantery life; men who are nor.-smokers and abstainers; men having unusually low incidence to exposure to venereal.

Men having soldiers heart are in reality nervous weaklings, a condition which does not necessarily impair their heart, lungs, and other vital organs nor their vision, hearing, etc.

Men afflicted with soldiers heart stack up as normally healthy persons while being examined in the primary examination station.

—*Army and Navy Register.*

New Mexico Medical Society
Raton
May 26-28, 1941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1. Knight, F., and Shelanski, H. A., "Treatment of Acute Anterior Urethritis with Silver Picrate," Am. J. Syph. Gon. & Ven. Dis., 23, 201 (March) 1939.
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Laryngoscope, Feb. 1935, Vol. XLV, No. 2, 149-154— Laryngoscope, Jan. 1937, Vol. XLVII, No. 1, 58-60

MEDICOFILM SERVICE

(Continued from page 121)

tered publications required by authors of compendia, treatises, text-books and all other digests of scientific literature.

Microfilm copies have, however the disadvantage that the text can be read only with the aid of a magnifier or projector. These devices are available at present, and more perfect and less expensive ones are being developed. Since microfilm copies usually represent only a small part of the literature collections made by an individual, the effort to read them will not be a serious task and will be very greatly compensated by the advantage of having at hand the complete copy of desired original publications.

Justification of Microfilm Copying. Although scientific research may in certain cases be undertaken for private gain, its publication is always for the benefit of others. The contribution of each individual represents a partial discharge of the obligation to those from whose previous publications each one has profited. The distribution of the periodical scientific literature by means of microfilms, to those not having access to it, makes it possible for many to pursue research who could not otherwise do so. Microfilm copying thus contributes to the advancement of science. Any restriction upon it, such as may be imposed by copyright, is accordingly contrary to the public welfare. In order, however, to avoid misunderstandings on this point, Medicofilm Service desires to emphasize that it does microfilm copying for research workers only on the mutual agreement that the copies so made are in lieu of loan of the publication or manual transcription of the original text, and they will be used only for the advancement of science and never in any manner contrary to the interests of the authors and publishers of the original papers.

Criticism of Microfilm Copying has arisen only in reference to the effect it may have upon subscriptions to journals. It is apparent, however, that such an apprehension is ill-founded when the total amount of research publication is considered in relation to the inconsiderable fraction of it which may be requested and can be reproduced in the form of microfilms. The index catalogue lists during the last 60 years about 2,500,000 titles of books and articles describing medical research. It it is assumed that one-half of these have become obsolete, the remaining 1,250,000 would require for their microfilming an equipment and personnel at least 100 times as great as that now installed in the Army Medical Library. Thus, it is evident that at its present scale of operation Medicofilm Service could not copy more than an average of 1 per cent of the contents of any one medical periodical in one year. Even if the service should expand to 100 times its initial capacity only a single complete copy of any one journal would be distributed as microfilms annually. It may be concluded, therefore, that microfilm copying cannot be justly charged with discouraging subscriptions to scientific journals.

Microfilms are strips of 35-mm. motion-picture film with images of printed pages photographed upon them in sequence. The printed text can be read only with the aid of a magnifier enlarging to five or more diameters or by means of a projecting apparatus. A special monocular viewer is available at $1.50, or equipped with handle and eye shield at $2. Highly perfected projectors cost at present about $100, but a simplified model at about $25 has been designed and will probably be available shortly.

Rates for Microfilm Copying. Since experience has shown that a large part of the cost of microfilm copying is consumed by accounting and cler-

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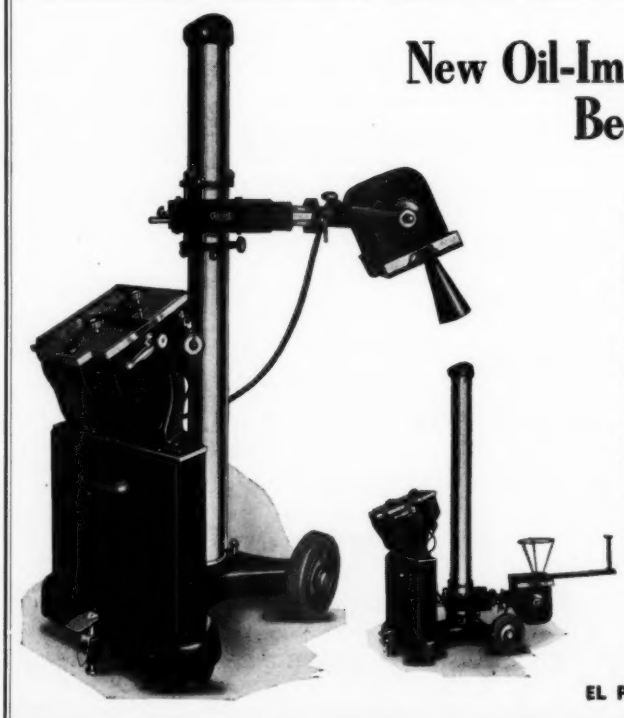

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DIAGNOSIS AND TREATMENT OF MENSTRUAL DISORDERS AND STERILITY: Charles Mazer, M.D., F.A.C.S., Assistant Professor of Gynecology and Obstetrics, Graduate School of Medicine, University of Pennsylvania; Gynecologist to the Mount Sinai Hospital, Philadelphia, Pa., and S. Leon Israel, M.D., F.A.C.S., Instructor in Gynecology and Obstetrics, School of Medicine, University of Pennsylvania; Associate Gynecologist to the Mount Sinai Hospital, Philadelphia, Pa. 485 pp. with 108 illustrations. Paul B. Hoeber, Inc., Medical Book Department of Harper & Brothers. First Edition. $6.50.

Here is a readable, systematic, easily understood presentation of two outstanding "chief complaints" which neither the general practitioner nor the gynecologist can avoid encountering. In general, this text presents the latest available and authoritative information in an interesting, enjoyable manner; and if here and there a statement can be refuted by some reference to the literature, who will quibble when for the most part the subject matter is based on solid ground. While reading the text one is tempted to call up Mrs. Blank and inform her that something different (the right diagnosis and treatment) might be attempted in her case and probably would solve her problem. The book is written so clearly that little more

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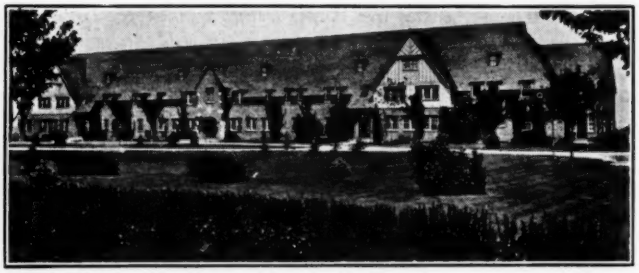

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Index to Advertisers

Baxter, Inc., Don 125
Borah, Chas. E. II

Cutter Laboratories ..... Cover 4

Dorsey-Burke Drug Store IV

Holland-Rantos Co., Inc. VII

Las Encinas Sanitarium VI
Lilly & Company, Eli X
Los Angeles Tumor Institute 1
Lovelace Clinic II

Mead Johnson Company IX
Medical & Dental Finance Bureau II
Morris & Co., Philip 127

National Association of Chewing Gum Mfgrs. IV

Pathological Laboratory ..... Cover 1
Pathological Laboratory II
Parke, Davis & Company VIII
Petrolagar ..... Cover 2
Physicians' Casualty Asociation IV

Sandoz Chemical Works, Inc. 1
S. M. A. Corp. ..... Cover 3
Smith-Dorsey Co. 128
Southwestern Surgical Supply Co. 129
Specialists of the Southwest ..... II, III

Taylor Printing Co. 131
Turner's Clinical & X-ray Laboratories 130

Upjohn Co., The V

Wayland's Prescription Pharmacy IV
Womack Clinic III
Woodcroft Hospital 130
Wyeth & Bro., John 126

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